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ABSTRACT

Conference participants examined how other states are preparing their farmers and rural communities to survive in the present "new world order," and considered whether Arkansas, one of only three states without a central agricultural agency, has the tools to forge strategies for the 1990's. "The Role of State Government in Agriculture" by R. O. Gunderson and E. Ospina describes the centralized agricultural organizations in 42 states and compares agency structure, policies, and programmatic areas. "The Role of State Government in Arkansas Agriculture" by the same authors indicates that although agriculture accounts for 30% of Arkansas's industrial base, responsibilities for agricultural development lie with many uncoordinated agencies that lack the mechanism to provide statewide planning. "The Changing Role of State Government in Rural Development" by S. N. Smith identifies six state strategies for successful rural development. "State Strategies for Promoting Agricultural Exports" by M. G. Popovich reports the results of telephone interviews with state program directors and managers about strategies for farm-product export expansion and focuses on notably innovative systems in Oregon, Texas, and California. "The Role of State Government Agencies in Farm Finance" by F. C. White evaluates 13 potential state farm-finance programs. "State-Level Agricultural Policy in Minnesota: Adjusting to Change in the 1980s" by C. F. Runge concerns the policies of a state with innovative agricultural initiatives and discusses Minnesota's interest buy-down program for financially distressed farmers. Each paper contains a selected bibliography. (SV)

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# THE ROLE OF STATE GOVERNMENT IN AGRICULTURE

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# THE ROLE OF STATE GOVERNMENT IN AGRICULTURE

EDITED BY
ENRIQUE OSPINA AND CAMI S. SIMS

WINROCK INTERNATIONAL INSTITUTE FOR AGRICULTURAL DEVELOPMENT

March 1988

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# THE ROLE OF STATE GOVERNMENT IN AGRICULTURE

Page

Foreword, Robert D. Havener . . . . . . . . . . . . . . . . . . . . . . . .v
Acknowledgments . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .vii
The Conference, Jo Ann Pryor . . . . . . . . . . . . . . . . . . . . . .ix
    Two Strategies. . . . . . . . . . . . . . . . . . . . . . . . . . . . . .ix
    Peripheral Potential . . . . . . . . . . . . . . . . . . . . . . . . . .xi
    What Arkansas Lacks. . . . . . . . . . . . . . . . . . . . . . . . . .xi
    Where Do We Go From Here? . . . . . . . . . . . . . . . . . . . . .xii

PART 1

## THE FUNCTION OF STATE GOVERNMENT IN AGRICULTURE

Introduction, Frank H. Baker . . . . . . . . . . . . . . . . . . . . . . . 1

The Role of State Government in Agriculture, Ralph O. Gunderson and Enrique Ospina . . . . . . . . . . . . . . . . . .3
    The Economic Basis for State Government Policies in Agriculture . . . . . . . . . . . . . . . . . . . . . . . . . . . . .3
    State Regulatory Programs in Agriculture . . . . . . . . . . . . . . .5
    State Programs for Farm-product Marketing . . . . . . . . . . . . .12
    State Programs for Soil and Water Conservation . . . . . . . . . . .25
    State Programs for Agricultural Financing . . . . . . . . . . . . . .26
    Structures of Centralized State Organizations . . . . . . . . . . . .27
    State Agricultural Budget Comparisons . . . . . . . . . . . . . . . .36
    Selected Bibliography . . . . . . . . . . . . . . . . . . . . . . . . . .39

The Role of State Government in Arkansas Agriculture, Enrique Ospina and Ralph O. Gunderson . . . . . . . . . . . . . . . . .51
    Organizational Structure . . . . . . . . . . . . . . . . . . . . . . . . .51
    State Regulatory Programs in Agriculture . . . . . . . . . . . . . . .52
    State Activity in Farm-product Promotion and Marketing . . . .56
    Federal-state Cooperative Programs . . . . . . . . . . . . . . . . . .60
    Key Issues for Arkansas's Agricultural Public Sector . . . . . . .63
    Selected Bibliography . . . . . . . . . . . . . . . . . . . . . . . . . .66

## PART 2

## SPECIAL STATE PROGRAMS IN AGRICULTURE

Introduction, Sandra S. Batie . . . 71

The Changing Role of State Government in Rural Development, Stewart N. Smith . . . 75
  - Inappropriate Policies . . . 76
  - Appropriate Policies . . . 78
  - Two Notes on Program Development . . . 90
  - Comprehensive Rural Development: New Initiatives . . . 91
  - Notes . . . 96
  - Selected Bibliography . . . 96

State Strategies for Promoting Agricultural Exports, Mark G. Popovich . . . 99
  - American Agriculture on the World Trade Roller Coaster . . . 100
  - Elements of a State Export Strategy . . . 102
  - Conclusions and Guidelines . . . 111
  - Notes . . . 113
  - Bibliography . . . 113
  - Appendix: State Program Contacts . . . 114

The Role of State Government Agencies in Farm Finance, Fred C. White . . . 115
  - Conceptual Framework for Public-sector Involvement in Farm Financing . . . 116
  - Budgeting Methodology . . . 121
  - Budgeting Results for 13 Types of Programs . . . 123
  - Evaluations of 13 Types of Programs . . . 126
  - Summary . . . 129
  - Implications . . . 130
  - Bibliography . . . 131

State-level Agricultural Policy in Minnesota: Adjusting to Change in the 1980s, C. Ford Runge . . . 133
  - Minnesota Interest-rate Buy-down Program . . . 134
  - Reinvest in Minnesota Program . . . 138
  - State-level Economic Forecasting and the Agricultural Sector . . . 141
  - Conclusions . . . 144
  - Selected Bibliography . . . 145

## APPENDIX

About the Contributors . . . 149

Participants, Conference on the Role of State Government in Agriculture . . . 151

# FOREWORD

Robert D. Havener
President, Winrock International
Institute for Agricultural Development

As an Arkansas institution, Winrock International Institute for Agricultural Development is interested in fostering agricultural development in the state. And a prime requisite for successful development is a thorough knowledge and understanding of the structure and characteristics of the target state or country.

Therefore, during the past 3 years Winrock International, with the University of Central Arkansas and the University of Arkansas at Fayetteville, has gathered and analyzed information about Arkansas as a basis for developing an approach to the state's agricultural development. The studies have analyzed the structure of Arkansas agriculture and the socioeconomic characteristics of the state's agricultural sector. Two major publications, *The Structure of Arkansas Agriculture: A Taxonomy* (1986) and *Agricultural and Socioeconomic Perspectives of Arkansas: Counties and Regions* (1987), and other papers have been generated by these cooperative efforts. As a result of these analyses, important issues related to agricultural policy have been identified for further examination. Prominent among these issues is the capability of the state's public sector to deal with the problems and to take advantage of the opportunities presented to its agriculture and rural areas.

We have examined the role of the Arkansas public sector in furthering the state's agricultural development. Arkansas is one of three states —the other two are Arizona and Indiana—that do not have a central board or agency to respond to the needs of agriculture and rural areas. To project a clear understanding of what other states are doing, the first part of this proceedings presents a descriptive study of Arkansas and 42 other states, looks at the economic basis for state government policies related to agriculture, examines their regulatory activities in the sector, studies state governments as facilitators and promoters of the agricultural sector, and compares expenditures of public funds on agriculture.

Four commissioned papers are presented in the second part. These papers deal with the role of state government in rural economic development, market promotion, agricultural financing, and

7

agricultural policy. All of the papers were presented at a conference held at Winrock International's headquarters on Petit Jean Mountain in December 1987. A summary of the conference discussions is also included.

The purpose of this proceedings is not to draw conclusions or make recommendations. Rather, it is to provide useful information and analysis for considering the appropriate role of state government in agriculture.

# ACKNOWLEDGMENTS

This study was made under a matching grant from the Winthrop Rockefeller Foundation to Winrock International.

The first two papers of this proceedings were prepared by Enrique Ospina (Winrock International) and Ralph O. Gunderson (formerly at the University of Central Arkansas and currently at the University of Wisconsin at Oshkosh). The four papers presented in the second part were prepared under consulting agreements with Winrock International by Mark G. Popovich (Council of State Policy and Planning Agencies), C. Ford Runge (University of Minnesota), Stewart N. Smith (Tufts University), and Fred C. White (University of Georgia). Robert D. Havener (Winrock International) graciously agreed to write the foreword to the proceedings and Frank H. Baker (Winrock International) and Sandra S. Batie (Virginia Tech University) the introductions to the first and second parts, respectively.

It would have been impossible to prepare this report without the contributions of general information, budgets, reading materials, and statistics from individuals in the public and private sectors in Arkansas. Special thanks are due to Clifton Meadors, Charles Eddie Smith, J. Randy Young, Tom Riley, Donald Von Steen, Doug Hicks, Randell Price, Edward J. Jordan, Robert Coats, Melvin Tucker, Sam F. Hindsman, Ewell Welch, Warren Carter, Travis Justice, Joe LaFace, Trent Roberts, and John Lair, and to all the individuals who participated in the conference on the role of state government in agriculture at Winrock International headquarters in December 1987.

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Maryland Department of Agriculture
Massachusetts Department of Food and Agriculture
Michigan Department of Agriculture
Minnesota Department of Agriculture
Mississippi Department of Agriculture and Commerce
Missouri Department of Agriculture
Montana Department of Agriculture
Nebraska Department of Agriculture
Nevada Department of Agriculture
New Hampshire Department of Agriculture
New Jersey Department of Agriculture
New Mexico Department of Agriculture
New York Department of Agriculture and Markets
North Carolina Department of Agriculture
North Dakota Department of Agriculture
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Finally, the editors want to express appreciation to Denise Felton, Katy Kellar, Melinda Murtha, Rhonda Newsom, Joyce Olds, Wayne Swegle, and Shirley Zimmerman of the staff at Winrock International for their support at different stages of publication of this report.

# THE CONFERENCE

Jo Ann Pryor

The eighties have been hard on agriculture and on rural communities across the country; the nineties promise to be even harder. In recent years state and local governments have been forced to shoulder more of the burden for finding solutions to their agricultural and rural woes, a trend certain to continue. Do they have the infrastructure they need to deal with the problems (and exploit the opportunities) the next decade will bring?

In late 1987, Winrock International and the Winthrop Rockefeller Foundation invited a number of Arkansas leaders to Petit Jean Mountain to take part in a conference on the role of state government in agriculture.

The purpose was twofold: to look at how other states are preparing their farmers and rural communities to survive in what one participant called "this new world order" and to consider whether Arkansas—one of only three states in the national without a central department or board of agriculture—has the tools it needs to forge strategies for the nineties.

The authors of the papers presented in the conference described some of the best and worst in state agricultural structures and strategies. Then they began to talk about Arkansas's strengths, weaknesses, and potential.

By the end of the second day, it was obvious that the conference had accomplished exactly what Winrock and the foundation intended: a diverse group of people with a common commitment to Arkansas's agricultural and rural communities had come together on neutral ground and opened a lively discussion. However, the dialogue has only begun. What follows is a summary of the beginning.

## TWO STRATEGIES

One way to categorize the agricultural and rural challenges with which states must wrestle is by whether their solutions lend themselves more to a defensive or offensive strategy. In the first category—caused by forces beyond state control—are problems that cannot be prevented but whose consequences, if foreseen, can be mitigated. In the second are matters in which states may write their own tickets, where (by action or inaction) states create their own opportunities or problems.

In each case states must be willing to cultivate foresight; they must understand the forces arrayed against them and their own advantages and limitations; and they must be creative in their search for solutions.

## A Good Defense

Farmers today are at the mercy of a great many forces over which neither they nor their most loyal advocates in state governments have control. The strength of the dollar, other nations' agricultural policies, and urban consumers' environmental fears will more likely decide a farmer's fate than whether he can increase soybean yields.

As these outside forces put the squeeze on agriculture, agriculture puts the squeeze on rural economies. Already changes in farm structure are affecting rural communities. More and more midsized farm operators are forced to choose: get big enough to make a profit or get an off-farm job and become a part-time farmer. This choosing is creating a "bimodal agriculture" in which the very large farms dominate in sales and the very small dominate in numbers.

As farms become larger they tend to go outside local economies to buy goods and services. But rural communities need more jobs for the people who cannot afford to farm full time. Such off-farm employment helps keep small farms afloat to do the buying and selling upon which many rural businesses depend.

Keeping rural economies viable when they are under such assaults will be no simple task. But states willing to anticipate these kinds of changes may be able to help their farm and rural communities avert otherwise inevitable disasters.

Therefore, a state's goal in this new economic climate should be to develop enough foresight to *act* sensibly before the only choice is to *react* in panic.

## A Good Offense

States are trying to create their own opportunities in different areas, with varying degrees of initiative. Three of those areas are fast becoming bandwagons: diversification, international market development, and value-added processing.

"Diversify" is the battle cry of practically every state in the nation. Arkansas, which has always been characterized by a truly diverse and flexible agriculture, may have real potential to stabilize farm and rural economies through even more diversification. Arkansas farmers now earn more than $100 million a year from what U.S. Census of Agriculture defines as "other crops and livestock"—including everything from crawfish to table grapes.

International market development is another likely arena in which states can be found fighting for their agricultural and rural economies, though few states are much beyond the point of simply opening a trade office somewhere overseas.

Value-added processing is a philosophy that says something like "Don't sell your grain; feed it to the chickens. Don't sell your chickens; make chicken pot pies." And the idea is catching on. Again, virtually every state is looking for the potentially high economic returns additional processing can bring.

## PERIPHERAL POTENTIAL

In many ostensibly nonfarm issues over which state governments have control, states have the potential for promoting or hindering farm and rural growth. Whether states see that potential depends on whether they look for it.

For example, grain grown in east Arkansas is shipped to the Gulf of Mexico and an uncertain international export market. At the same time west Arkansas poultry producers import grain for feed from outside the state. Winrock was asked to determine whether it was more feasible for the east-Arkansas farmers to sell grain to the more stable and nearby west-Arkansas market. Winrock determined it less feasible because the transportation system in the state makes it difficult and prohibitively expensive to move grain east to west.

One lost opportunity is not reason enough to overhaul Arkansas's entire transportation system. But such peripheral potential should be explored when the state does long-term planning in any area.

## WHAT ARKANSAS LACKS

Despite its lack of a centralized department or board of agriculture, Arkansas offers essentially the same services to its agricultural sector as most other states, with one difference: in Arkansas the services are provided by a number of independent agencies, each with well-defined objectives and a tightly focused mandate. These complementary agencies work efficiently with little duplication of effort.

However, they lack a mechanism to foster communication and take advantage of their complementarities. And two key functions—both related to public perception of and support for agriculture—tend to fall through the cracks in this structure.

### A Say in Policy

None of Arkansas's state agencies has a mandate to look at and develop comprehensive policies for the agricultural sector as a whole. Instead, the state decides policy and direction only to meet immediate needs.

Who, some participants asked, gives leadership in the state to agriculture? Where does the governor go when he needs counsel on issues of agriculture? Who has a voice at the cabinet level? Who protects the interests of agriculture at budget time? No one had a definitive answer.

One of the most important things that departments or boards of agriculture do in most other states is represent their interests at the cabinet level, ensuring a voice for agriculture in budgets and state policy.

This need for a greater or more coherent voice for agriculture does not necessarily mean that the state should create a new bureaucratic arm. However, it does mean that Arkansas needs to consider how (and how clearly) the interests of agriculture are articulated and represented.

### A Public Voice

States derive tremendous benefits from their offices or departments that provide information about agriculture and promote public support of farm and rural interests.

Information that is readily available in useful forms is critical to development. Arkansas has no state clearinghouse for agricultural information. Although plenty of data is available, no one is mandated to put it into perspective.

For example, if someone wanted to encourage the establishment of farmers' markets—enterprises that have been financial successes in some states—they would have no direct source for the necessary information about opportunities, problems, bottlenecks, or potential. This lack of an information source may be an unnecessary discouragement for policymakers and investors.

Public perception of (and sympathy for) agriculture will become a much more precious commodity as taxpayers are stretched beyond the point of comfort and as consumers experience the effects of environmental mistakes.

For example, when groundwater contamination is blamed on agricultural runoff or some hot-spot cancer is linked with pesticides, farmers can quickly become the enemy in the eyes of the public. In environmental emergencies over the last few years, agriculture's image has suffered less in states with established information offices, from which farm and urban groups could quickly tap into a communication process. *After* the emergency is not the best time to think about making friends with the public, some participants noted.

## WHERE DO WE GO FROM HERE?

What should Arkansas do with the problems and opportunities that confront its farm and rural economies? There are no simple solutions. Rebuilding and reinforcing these economies will require dozens of approaches.

Arkansas policymakers know this firsthand. One participant described an experience in another arena: "For many years in Arkansas, economic development was defined as industrial recruitment. Our strategy was to steal industries from the north. And we were fairly successful. You look to the north and chant 'Sun Belt' two or three times, and they come rolling down here. And that worked well—for a while."

But times changed. Arkansas gained experience and savvy, and it began to exercise more initiative. Enticing industries from colder climates became just one element of a more sophisticated and comprehensive development strategy.

The state must develop the same kind of sophisticated and comprehensive strategy to face its farm and rural problems. "We already have a lot of good things going on in state government, in colleges and universities, in private organizations," said one participant, "but we have to better coordinate, better focus our resources so we're all going in generally the same direction."

"We need to take a harder look," said another, "at the resources we have and ask where we want to go and what the environment is going to be in which we have to operate."

That statement captured the interest of all the participants: the possibility of working together—the governor's office, universities and colleges, extension offices, and agricultural organizations—to develop a long-term plan for agricultural and rural development in Arkansas. It would not be a simple process, warned one participant: "The states that have done such studies have taken a year or more and used a lot of energy in the process. But where they've been done well, it's been worth it."

We have another choice, suggested one of the participants: "We could put our heads in the sand and say 'Lets don't talk about it.' But we've got to resist that temptation. Somebody has to worry about these trends or we'll be left only to adjust as things get progressively worse."

## PART 1

# THE FUNCTION OF STATE GOVERNMENT IN AGRICULTURE

# INTRODUCTION

Frank H. Baker

As a new federalism emerges throughout the country in the eighties, state governments are taking greater initiative in searching for solutions to their problems. Because of its attempt to reduce the budget deficit, the federal government has lowered, and even eliminated, financial support of development programs that are important to agriculture and rural areas. States with agricultural sectors of economic and social importance face very complex problems. Some problems, like farm financial distress, are common to rural America while others have a state or local character, like a high concentration of small farmers economically dependent on availability of off-farm employment.

This greater state government involvement poses a question: If states are going to support their own agricultural and rural communities by providing the programs needed for successful agricultural development, do they have the public infrastructure necessary to administer such programs effectively? The two papers presented in part 1, while not attempting to answer the question fully, offer a review of how some states administer support through a centralized organization and how Arkansas administers state support through several independent agencies. The papers provide a factual and theoretical basis for discussing solutions to some of the most pressing problems of Arkansas agriculture.

The first paper, "The Role of State Government in Agriculture," describes the centralized agricultural organizations in 42 states. The authors discuss each organization's structure, policies, and past and current programmatic areas. The paper indicates that most state agricultural programs deal with regulation, market information and promotion, resource conservation, and consumer services. The authors describe the programs in detail and illustrate them with examples. The authors also discuss the organization and functions of state government agricultural agencies, as well as the scope of functions and operations of state boards and commissions of agriculture, pointing out the similarities and contrasts of these bodies. Finally, the authors use simple statistics to show the relationships between the level of state public funds committed to agriculture, state gross farm sales, and total general expenditures.

The second paper, "The Role of State Government in Arkansas Agriculture," indicates that although agriculture accounts for nearly 30% of Arkansas's industrial base and public and private leaders recognize its importance to the economy of the state, Arkansas is only one of three states in the nation (the other two are Arizona and Indiana) that do not have a central organization that can respond solely to the problems and needs of the agricultural sector. Instead, responsibilities for agricultural development are in the hands of many agencies, which have developed programs of varying degrees of effectiveness. However, the authors point out that the relationships between gross farm sales, total general expenditures, and the amount of public funds devoted to agriculture in Arkansas are similar to those of other states.

The second paper also argues that most functions found in state departments of agriculture are provided by several state agencies that serve the agricultural sector in Arkansas. And although these independent agricultural agencies have well-defined objectives, seem to operate efficiently, and do not appear to have overlapping functions, they are unable to take advantage of any number of complementary activities and responsibilities because no centralized mechanism exists for coordination. Furthermore, the authors point out that because the agencies do not have a coordination mechanism, they lack the initiative of statewide agricultural policy and decision-making. The paper concludes that, in general, state agencies carry out the policies and programs formulated by the federal government without considering broader approaches to state planning and the consequences of incomplete planning on the performance of the agricultural sector. Finally, the authors suggest alternatives as topics for discussion among public and private state leaders.

# THE ROLE OF STATE GOVERNMENT IN AGRICULTURE

Ralph O. Gunderson and Enrique Ospina

This paper focuses on the role of the state public sector in agriculture, with specific references to the most common functions performed by governments in 42 states. This paper discusses

- the economic basis for state government policies in agriculture
- state regulatory programs in agriculture
- state programs for farm-product marketing
- state programs for soil and water conservation
- state programs for agricultural financing
- structures of centralized state organizations
- state agricultural budget comparisons

## THE ECONOMIC BASIS FOR STATE GOVERNMENT POLICIES IN AGRICULTURE

If markets always operated efficiently when left alone, governments would have little need to intervene in the economy. In reality, many competitive markets cannot operate efficiently. Two factors most often contribute to such inefficiencies: the existence of public goods and the presence of externalities. Therefore, government intervention may be called on to alleviate the effects of these factors and improve the efficiency of a specific market. Agriculture is no exception.

### Public Goods

The term *public good* does not necessarily mean that something is produced by the government; rather, it defines two characteristics of the good or service: nonrival consumption and nonexclusion.

*Nonrival consumption* means that one person's consumption of a good does not reduce the quantity of the good that is available to other people at any point in time. Nonrival consumption occurs in agriculture, for example, when a cattle rancher's animals are protected from brucellosis by a public quarantine, vaccination, and herd-inspection program. The benefits that the rancher receives in no way diminish the benefits other ranchers receive because their cattle are also protected.

*Nonexclusion* means that it is difficult, if not impossible, to confine the good or service to the consumer who pays for it. When a person buys a pair of shoes, he or she can exclude others from the use of those shoes. Therefore, the good is considered exclusive because shoes are a private good. However, when a city builds a public park, residents who paid the price (taxes) to provide this facility would find it difficult and costly to prevent nonresidents, who did not pay taxes, from using the park. Residents would have to build a fence surrounding the park and hire a guard to keep nonresidents from entering. Nonexclusion occurs in agriculture, for example, when a farmer's taxes finance research to improve the technology of farm production. Farmers who paid no taxes cannot be excluded from the benefits of this research.

Goods that are nonrival in consumption and are nonexclusive are difficult for the private sector to produce. Once the product is available, many consumers benefit immediately, even those who did not pay for the product. Thus, the product is not profitable, and the marketplace is not likely to offer this product in an efficient quantity, if at all. Furthermore, because of the lack of profit, private markets will not produce these goods even when the goods are worth more to society than it costs private producers to provide them.

To illustrate the private markets' unwillingness to produce nonrival, nonexclusive goods, consider a rural region with 100 residents who must travel on a dusty, dirty road in the summer and a muddy, rutted road in the winter. Suppose that the road could be paved for $100,000 and that it would be worth $300,000 to the residents to have the road paved. The road would be smoother and cleaner, cause less wear on vehicles, and raise the value of the residents' property. Even though the benefits of the new road are greater than the cost, the private market will not likely provide for its construction. For the private market to be successful, the residents must volunteer to pave the road and jointly finance it; however, all of the residents will certainly realize that they will benefit to the full extent from the new road even if they do not contribute to its construction. If too few people contribute (which is usually the case), an insufficient amount of voluntary contributions results, and the road is not improved through private action. Therefore, the public sector is left to pave the road, if it is to be paved at all.

As a general rule, the size of the affected group determines the groups's difficulty in organizing itself. As the size of the affected group increases, the difficulty of organizing itself through voluntary action to provide a public good increases. Because most groups in agriculture are large—whether they are producers' associations, cooperatives, or farmers in a region—they would have great difficulty trying to organize enough to produce a public good.

### Externalities

Externalities are costs or benefits of an activity that are imposed on uninvolved third parties. There are both positive externalities and negative externalities. However, either type makes it difficult for private markets to operate efficiently.

An example of negative externalities is a farmer who applies chemical pesticides to a soybean field in an effort to reduce crop damage from harmful pests. In a rational situation, the farmer uses the chemical up to the point where the marginal cost and the marginal benefit of its use are equal. However, water runoff from the field could carry some chemical residue to a nearby river, which could damage wildlife or prevent a downstream farmer from using the water for irrigation. These negative externalities are imposed on third parties, and their costs are not taken into account by the farmer using the pesticide. To consider externalities and achieve a more efficient result, the government may establish policies to regulate the use of this chemical.

The application of grade standards for farm commodities generally results in positive externalities. For example, a corn producer benefits from having corn graded by a grain inspector because the market pays higher prices for higher grades of corn. However, grain elevators and buyers also benefit from the farmer's decision to have the grain inspected and graded. Consequently, the price the corn producer is willing to pay to have the corn graded does not fully reflect all of the benefits associated with the grading process. Therefore, the market cannot perform efficiently. The government may step in and improve the market's solution by subsidizing the grading of agricultural commodities.

## STATE REGULATORY PROGRAMS IN AGRICULTURE

It is difficult to carry on normal agricultural activities anywhere in the country without encountering some state-government involvement, principally through state departments of agriculture. Activities ranging from buying a gallon of gasoline to spraying pesticides on a field are influenced by state agricultural agencies. State governments have myriad responsibilities in agriculture in their frequent dual roles as regulatory and service agencies. As regulatory agencies, they enforce federal and state laws designed to protect both farmers and consumers. As service agencies, they provide valuable services to producers and consumers. The use of the terms *regulatory* and *service* are somewhat confusing because they often represent the same activity, depending on the viewer's perspective. For example, when a milk inspector collects milk samples at a Grade A dairy farm, the dairy producer may view this inspection as regulation by the government, but consumers may view the same inspection as a service provided by the government to assure wholesome milk on the dinner table.

The large majority of state public funds spent on agricultural programs provide government regulation. Most states are interested in government regulation of three areas: business practices, food, and agricultural inputs.

The intensity and scope of regulation vary across the states in these three areas. Because states produce different commodities, the nature of farm problems, the organization of state government agencies, and the political constraints make interstate comparisons difficult, and procedures to evaluate the appropriateness and success of each state's policies are hard to define. The following discussion presents a rationale for state regulation of agriculture as well as a picture of state policies and programs found throughout the country.

## Regulation of Business Practices

State legislatures charge inspection divisions with the responsibility of providing a variety of services that protect consumers and enforce many regulations that benefit both consumers and producers.

One of the fundamental forms of business regulation, taken for granted by most consumers, concerns the accuracy of weights and measures. The federal government regulates weights and measures only to the extent to which states ensure standards in packaging, measuring, and weighing. State regulators inspect supermarkets, packing plants, gasoline stations, feedmills, and many other locations. The inspections ensure a reasonable level of accuracy in weighing and measuring, so when a package says it contains 12 ounces of a product, it contains 12 ounces, or when a gas pump indicates 5 gallons of gasoline were pumped, the 5 gallons were delivered to the customer. The regulation of weights and measures is a good example of a public good provided by state government. A few people in the public sector can most efficiently check packages, so consumers can be reasonably sure of seller statements regarding volume and weight. It would be prohibitively costly for consumers to rely on their own resources to examine the accuracy of all sellers' claims.

Maintaining accuracy in weights and measures is one of the oldest functions of government. The federal Weights and Measures Law was passed by Congress in 1799. The federal government assists states through the National Bureau of Standards, but the states must carry out the many weights-and-measures inspections.

The experience of Nebraska is characteristic of several states. While still a territory, Nebraska became subject to the Weights and Measures Law passed in 1856 by the Territorial Council and the House of Representatives. This legislation set the number of pounds to the bushel for different products and set penalties for people knowingly keeping false weights or measures. In 1905 the Food, Dairy, and Drug Commission became responsible for checking the net weight statements on food packages. The Nebraska Department of Agriculture, created in 1919, consolidated all responsibilities for the Weights and Measures Law and began making inspections using 1,000 pounds of 50-pound weights. Soon this was not enough test weight. The department purchased large trucks, each able to carry 5,000 pounds of test weights. The 1919 legislature passed a law requiring all commodities to be sold by weight or numerical count. These laws remained in effect until 1972, when Nebraska adopted the Model States Weights and Measures Law, which requires the registration of all commercial weighing and measuring devices.

State departments of agriculture enforce weights-and-measures regulations in all but 11 states; three of those do not have an agriculture department or central agency. Typical regulatory activities include

- inspecting all commercial weighing and measuring devices
- checkweighing packages weighed or labeled in supermarkets, as well
- as checkweighing farm products and supplies such as livestock, feed, seed, and fertilizer
- investigating consumer complaints
- licensing public weighmasters
- reviewing records of public weighmasters

A particular state program cannot be easily justified by comparing the specific costs and benefits associated with the program. However, the Virginia Department of Agriculture and Consumer Services conducted an analysis and concluded that its motor-fuel pump inspections discovered enough measurement violations to pay for the entire Virginia Weights and Measurements Program twice. In 1984, 3.2 billion gallons of motor fuel were sold in Virginia. If each gallon sold were permitted to be 1 cubic inch short, the amount of shortage would have been 13.9 million gallons. At an average $1.15 per gallon, the shortage would have cost consumers $16 million.

States regularly oversee other aspects of business operations. A major responsibility of inspection divisions is to ensure product conformity to declarations on product labels. Division responsibilities include food grade and standard inspection and feed, seed, fertilizer, and pesticide inspection. Inspections are performed daily throughout the states to ensure that these products comply with applicable laws and regulations. Divisions inspect warehouses, food-processing plants, bakeries, retail stores, farms, and vehicles. Inspectors obtain product samples for laboratory analysis and, if those samples are found in violation of sales laws, place the products under stop-sale orders or take any other necessary action. Inspectors also have the authority to destroy adulterated food products.

State grading and inspection services are based on a uniform interpretation of national standards and grades, are usually provided on a voluntary basis, and are supported by fees charged to customers. Most of the states are responsible for training graders and inspectors. These services cover all agricultural commodities and help market participants determine the quality of the product. For example, the Louisiana Department of Agriculture provides inspection services on demand for fresh fruits and vegetables at packing houses and assembly points throughout the state under a federal-state cooperative program. The inspectors issue certificates at shipping points. The certificates are later used as basis for sales and for settlement of claims. Additional inspections are made upon request at receiving points to determine whether USDA grade standards are met by certain lots of products, to verify whether any changes in the condition of the products occurred, or to determine whether the product meets the requirements agreed upon between buyer and seller.

State laws frequently require grain dealers to be bonded, have an irrevocable letter of credit, or operate as a cash buyer to be licensed by the state. Without this type of legal protection from unscrupulous business people, the farmer's only recourse would be a long process through the court system. Some state laws give farmers even more protection by requiring dealers to pay them within a few days of each transaction. Such requirements assure prompt payment and reduce the chances of dealers' becoming financially unstable. For example, the Warehouse Division of the Georgia Department of Agriculture has auditors who inspect grain warehouses every 30 to 45 days. State warehouse audits typically consist of checking inventory records, verifying receipts, measuring and inspecting goods in storage, testing grading equipment for accuracy, checking grading and weighing procedures for conformity with the law, and verifying annual registration and licensing of an establishment.

## Regulation of Food

States also provide regulations to guarantee the wholesomeness of food products. One of the most important programs is the inspection of meat. For example, the Division of Meat Inspection of the Ohio Department of Agriculture administers the Ohio Meat Law to comply with provisions of the Wholesome Meat Act passed by Congress in 1967. Such state meat-inspection programs are subject to review by the Federal Meat Inspection Service of USDA and must be certified as being equal to federal inspection. The Ohio meat-inspection program ensures that meat products are processed under sanitary conditions and are wholesome, unadulterated, and labeled properly. The program meets the objectives by

- ***Approving processing facilities and sanitation.*** Each establishment must maintain sanitary conditions by providing a safe water supply, an adequate sewage system, and properly installed plumbing and drainage facilities.
- ***Conducting antemortem and postmortem inspections.*** State inspectors examine each animal to be slaughtered for human consumption before slaughter and each carcass at the time of slaughter and dressing to ensure wholesomeness and freedom from contamination. All diseased animals and carcasses are handled under veterinary supervision to ensure that the meat is disposed of and does not enter the public food supply.
- ***Inspecting products during handling.*** Products passing postmortem inspection are again inspected at every stage of handling to ensure that only wholesome products identified with an Ohio inspection legend leave the establishment.
- ***Regulating preparation.*** The meat-processing industry is required to exercise controls during the preparation of processed products to ensure that only wholesome ingredients are used and that added substances are approved and used only in allowable quantities.
- ***Approving labels.*** Labels of processed products, bearing the state inspection seal, must be submitted to the division for approval. The seal is the consumer's assurance that the product is wholesome, unadulterated, and properly labeled when leaving the establishment.

Dairy products also receive substantial attention from state regulators. State dairy inspectors check all Grade A dairy farms and issue permits to processing plants in accordance with the U.S. Department of Health and Human Services Recommended Grade Pasteurized Milk Ordinance. Grade A dairy farms are inspected and certified in accordance with the USDA Recommended Standards for Milk for Manufacturing Purposes. The major dairy-producing states conduct the Interstate Milk Shippers Certification Program as recommended by the Food and Drug Administration (FDA) to ensure unrestricted interstate movement of all Grade A dairy products and to avoid duplicate inspections by other states or agencies.

In Georgia, the department of agriculture developed a quality milk program for the state's dairy farmers. This voluntary program's objective is to promote the production of Grade A milk and to reduce or eliminate mastitis bacteria in milk samples. Department personnel visit dairy farms and analyze milking equipment for proper size, installation, and function. Inspectors observe milking procedures and examine cows' udders for problems caused by malfunctioning equipment. Inspectors collect milk samples from each cow in the herd to be tested for mastitis bacteria and leucocyte count. Program personnel keep records for each herd and advise the participating dairy farmers of the inspection results and any necessary corrective actions. Approximately 10% of Georgia's dairy farmers participated in the quality milk program in fiscal year 1985. If fully implemented, the program could result in annual savings of over $1 million through reduced milk-production losses due to mastitis and the cost of mastitis medication.

States also conduct table-egg inspection by randomly checking millions of dozens of eggs. Inspectors use candling devices to find irregularities in yolks and whites and to find any shell cracks. Eggs that do not meet standards are rejected. In addition, inspectors check eggs to ensure that a carton labeled *small, medium, large,* or *extra large* is filled with that size egg. California is the leading table-egg producer in the country. County agricultural personnel, who are trained and supervised by California state personnel, inspect eggs at production, wholesale, and retail levels. California inspected over 22.5 million dozen eggs in fiscal year 1985, with a rejection rate of more than 7.2%.

Animal health is another concern of state regulators. Brucellosis is a cattle disease that receives considerable attention because state classification determines the speed and cost of marketing animals to other states. Because the calfhood vaccination is the only preventive measure for brucellosis, many states have developed extensive vaccination programs. USDA initiated a free, nationwide vaccination program in 1979 but had to eliminate it in 1984 in the wake of federal budget cuts. Many states were left with virtually no funds for brucellosis control. Some states generated resources to continue the program. The Kentucky Department of Agriculture has been trying to upgrade the state's brucellosis status in the nation. Following the 1984 elimination of federal funds, the legislature appropriated nearly $500,000 annually for statewide calfhood vaccination. In addition, the state imposed regulations requiring all heifers born after July 1, 1985, to be vaccinated before going to any farm in the state or changing ownership and established a program for herd certification. The program mandates the testing of each animal every 10 to 14 months and of each new animal entering the herd.

Other livestock diseases that receive attention from state agricultural agencies are tuberculosis, equine infectious anemia, and pseudorabies. Most disease-control programs consist of vaccinations, quarantines, surveillances, and strict import regulations. States that are lax toward disease control often become dumping grounds for sick animals.

Controlling poultry diseases is important in many states. For example, the Poultry Section of the Alabama Department of Agriculture and Industries administers the National Poultry Improvement Plan as well as the Alabama Egg and Alabama Shell Egg laws. Under the National Poultry Improvement Plan, developed by the poultry industry to apply new technologies, inspectors test all hatching-egg-supply flocks of primary poultry breeders for hatchery-disseminated diseases and inspect all hatcheries to ensure compliance with the plan and laws regulating the hatchery industry. Until January 1976, when USDA declared Alabama to be free of pullorum-typhoid, the state required all birds in both multiplier and primary breeder flocks to be tested for the disease. Currently, the state requires testing only of the primary breeders producing hatching eggs and chicks. In addition, Alabama requires all plants grading hatching eggs, producer/packers with more than 3,000 hens, and all hatcheries to register under the federal Egg Products Inspection Act. Inspectors check these registrants every quarter to ensure that all restricted eggs such as checks, dirties, and incubator rejects are handled properly or disposed of according to the law.

## Regulation of Agricultural Inputs

Other public regulations encompass products used for agricultural production, such as chemicals and other inputs. State regulations in these areas reflect the existence of externalities or public goods (services) that would not be sufficiently available if left to the private marketplace.

The government regulates pesticides because they can be harmful to humans and animals and are potential environmental hazards when not applied, stored, or disposed of properly. State governments are involved in three areas. First, states are responsible for monitoring the use of pesticides by surveying aerial and ground applications of agricultural pesticides and application of nonagricultural pesticides such as structural-pest control, rights-of-way, and lawn-pest control. Second, state governments ensure that applicators are trained and are able to apply pesticides safely. States develop and participate in training seminars, administer written examinations, and issue licenses to qualified applicators. Third, states ensure product quality by collecting product samples and conducting chemical tests to determine adherence to high standards of quality and proper label registration.

Because problems result from relying heavily on commercial programs, state governments have increased integrated pest-management programs. For example, in 1985 the Plant Industry Division of the New Jersey Department of Agriculture opened one of the most advanced laboratories in the nation for rearing beneficial insects. The laboratory focuses on rearing insects that are the natural enemies of agricultural pests that have developed resistance to chemicals, with the objective of reducing the need for pesticide application on food crops in the state. This program has reduced pesticide use by 96%, saving $5.4 million.

State regulation of other agricultural inputs—mainly feed, seed, and fertilizer—ensures that they are labeled properly, conform to label guarantees, are free of unsafe levels of residue, and are effective for their intended use. To accomplish this purpose, the Virginia Department of Agriculture and Consumer Services provides the following services, which are similar to those offered in several other states:

- sampling and reviewing labels of commercial feeds, fertilizers, liming materials, seed, and animal remedies at the retail, wholesale, and manufacturing levels
- administering the evaluation and review of laboratory results, removing from sale those products that do not meet label guarantees or are found to be adulterated and assessing applicable fines
- inspecting manufacturers of medicated feed to determine whether drugs are used in accordance with federal regulations and whether manufacturers are competent in using drug components
- testing all official samples of seed, all certified seed lots, and samples of seed submitted by farmers to provide critical information required for labeling and planting and to support research related to seed development

Another example of a state's regulating agricultural inputs is the Seed Division of the Alabama Department of Agriculture. Farmers and seed dealers in Alabama can determine how well a particular seed will germinate and perform in extreme weather by obtaining a vigor test. Each farmer or dealer is entitled to $10 of free seed testing of two samples each month. Inspectors from the Seed Division travel throughout the state to sample seed at wholesale and retail locations. As a result, agricultural producers are assured that the inputs they purchase are quality products.

## STATE PROGRAMS FOR FARM-PRODUCT MARKETING

Agricultural marketing involves accurately identifying consumer demand and developing commodities that satisfy that demand and yield favorable returns to producers. States accomplish these ends by selling, advertising, and promoting commodities and by providing customer services.

Evolving economic conditions cause both problems and opportunities for marketing agricultural commodities—and each state is affected differently. These state-to-state economic differences, together with regional differences in political climate, help explain whether particular states should follow active or passive policies in agricultural marketing.

Many states use active marketing policies to assist their agricultural economies. Reasons given for this increased attention to farm-product promotion include

- emerging competition from production areas outside the state, where production costs may be lower (for example, cotton production was displaced from large areas of the southern United States to California because California's costs were lower)
- increased costs of transportation that offer opportunities for local commodity producers
- emerging agricultural industries, such as aquaculture, that provide potential for new farm enterprises
- successful farm-production research that creates the need for a concentrated emphasis on developing and promoting consumer markets

The magnitude and direction of state government programs in developing and promoting farm-product markets vary across states (see table 1). States have developed programs to facilitate bringing together the buyers and sellers of agricultural commodities by providing them with vital market information that would be difficult or impossible for them to obtain through their own efforts. States also use active promotional programs to identify, develop, and expand domestic and worldwide markets for their farm commodities.

## The States as Facilitators

Reliable, timely, and public market information is vital to the development and growth of commodity markets. The most basic information includes price, quantity, and quality of products for sale. However, it would be prohibitively costly for the individual buyers or sellers of farm products to try to obtain this information through their own efforts. Therefore, states provide such information through federal-state commodity-reporting services at subsidized costs to buyers and sellers. As markets grow more numerous and specialized, the demand for accurate and timely market statistics increases. For example, conventional cash-market reports are now obsolete because more transactions are made through direct-sales arrangements or forward contracts.

The Federal-State Market News Service collects marketing data from farmers, buyers, dealers, shippers, and auction-sales companies. The information is volunteered and includes selling prices, volumes sold and processed, shipments, and market conditions. The National

Table 1. Programs and expenditures for agricultural market development and promotion, selected states, fiscal years 1985 and 1986.

| State | Fiscal year | Type of program | Dollars spent |
|---|---|---|---|
| Alabama | 1986 | Market development | 148,000 |
| | 1986 | State farmers market authority | 250,000 |
| | 1986 | Montgomery farmers market | 150,000 |
| California | 1985 | Farmers markets | 519,000 |
| | 1985 | State export development | 300,000 |
| Colorado | 1985 | Market development | 264,044 |
| Connecticut | 1985 | Market development and regulation | 409,262 |
| | 1986 | Market development and regulation | 526,790 |
| | 1986 | Aquaculture | 25,000 |
| Delaware | 1985 | Commodity development | 91,700 |
| Florida | 1985 | Domestic and international market development | 566,029 |
| | 1985 | Farmers markets | 1,322,990 |
| Georgia | 1985 | International trade | 170,000 |
| | 1985 | Domestic marketing | 1,488,588 |
| | 1985 | Major farmers markets | 3,313,000 |
| Illinois | 1985 | Domestic market research and development | 200,000 |
| | 1985 | Export promotion | 534,400 |
| Maryland | 1985 | Market promotion | 200,300 |
| Minnesota | 1985 | Domestic market development | 1,137,400 |
| | 1985 | International trade development | 1,486,500 |
| | 1985 | Export finance authority | 2,164,700 |
| Mississippi | 1985 | Market promotion | 188,990 |
| | 1985 | Trade mart | 131,916 |
| | 1985 | Farmers markets | 253,803 |
| Missouri | 1985 | Domestic and international market development | 868,647 |
| New York | 1986 | Market promotion | 4,800,000 |
| North Dakota | 1985 | Market development | 144,375 |

Table 1. Programs and expenditures for agricultural market development and promotion, selected states, fiscal years 1985 and 1986 (continued).

| State | Fiscal year | Type of program | Dollars spent |
|---|---|---|---|
| Oklahoma | 1985 | International marketing | 263,603 |
| | 1985 | Domestic market development | 95,377 |
| Oregon | 1985 | Market development | 380,273 |
| Pennsylvania | 1985 | Market development | 60,000 |
| | 1986 | Market development | 60,000 |
| Tennessee | 1985 | Market development and promotion | 46,864 |
| Texas | 1985 | Domestic market promotion | 2,916,637 |
| | 1985 | Export market promotion | 696,666 |
| Virginia | 1986 | Wine promotion | 140,000 |
| | 1986 | Domestic market development | 467,144 |
| | 1986 | International trade development | 650,000 |
| Washington | 1985 | Foreign market development | 850,000 |
| West Virginia | 1985 | Farmers markets | 730,132 |
| Wisconsin | 1986 | Market development | 350,000 |
| | 1986 | Hong Kong office | 100,000 |
| | 1986 | World Dairy Expo | 55,000 |

Source: State departments of agriculture, unpublished data.

Agricultural Statistics Service of USDA forms part of a federal-state program that provides estimates of acres planted and harvested, production, stocks, and use of crops as well as livestock and poultry production and inventory estimates. These cooperative programs publish monthly forecasts of harvests during growing seasons as well as information on prices, weather and general growing conditions, and special reports (such as the California Agricultural Statistics Service's *California Export Directory*).

New sampling techniques and improved estimating procedures now provide more precise forecasts than in the past. Modern procedures implemented by the National Agricultural Statistics Service include objective crop counts, probability-list sampling, area-frame sampling, multiple-frame sampling, aerial photography, and remote sensing.

Ohio typifies many states in its reporting of market information. The Market News Section of the Ohio Department of Agriculture has informational programs that deal with livestock, grains, and poultry. State personnel contact 15 country concentration and plant points daily to determine hog prices. In addition, the section makes available information from major U.S. terminals and direct country markets, markets for live and dressed beef, sheep markets, and feeder-calf and pig markets. Daily information includes future grain-market information and Ohio cash grain-market activity. Toledo and Cincinnati terminal and basis prices together with price trends are also accessible. Ohio egg, spent-hen, broiler, and duck prices are available through the poultry-market news program under a federal-state cooperative agreement. The state plays a major role in the national egg-pricing network because of its large volume of egg production. The Ohio Department of Agriculture reports that users of this market information include such diverse groups as insurance and investment companies as well as other government agencies.

While some states are content to provide only traditional commodity-market data, the Georgia Department of Agriculture goes a step further and acts as a clearinghouse for market information. The department publishes and distributes the *Farmers and Consumers Market Bulletin*, which is notable for its progressive style. Published since 1918, the bulletin features articles describing the services of the department. Each weekly issue contains about 1,500 advertisements selling everything from farm employment to livestock to fishbait. Subscriptions are free for Georgia residents. A study conducted by the Department of Agricultural Economics at the University of Georgia in 1981 estimated the economic impact of the bulletin to be over $137 million per year.

Standards and standardized containers are essential to efficient market systems because they help buyers and sellers communicate. Therefore, many states, under cooperative agreements with USDA, offer commodity-grading and -inspection services. State participation in these federal-state cooperative grading-and-inspection programs is determined by the commodities that are most important in each state. For example, the Produce Marketing Act, which promotes the development of New Mexico's produce industry, establishes standards and standardized containers for fruits and vegetables and prevents fraud and deception in receiving, packing, marketing, and selling fruits and vegetables. The New Mexico Department of Agriculture's fruit- and vegetable-inspection program operates at shipping points in cooperation with its counterpart branch at USDA. The

32

department coordinates the work of federally licensed inspectors and stations them where they are needed during the shipping seasons. Inspectors issue certificates of inspection at the request of growers or shippers. The state can then use these certificates to determine responsibility when produce does not meet the trading conditions certified at the time of inspection.

Missouri's Feeder-Pig Grading Service, also a cooperative effort with USDA, was established in 1973. USDA-Missouri Department of Agriculture graders apply uniform USDA feeder-pig grade standards. Participation in the feeder-pig grading programs is vital to the state's farm economy because Missouri is one of the largest producers of feeder pigs in the nation.

Government grading and inspection programs such as those in New Mexico and Missouri help facilitate market trading by reducing the costs of information for buyers and sellers—similar to commodity-price information programs. Government commodity-grading services contribute to operational efficiency in commodity marketing by saving time for traders, consumers, and lenders who need to determine the quality of the commodity being traded. Trade agreements are often made without the buyer or seller personally inspecting the product; in fact, traders may be located thousands of miles apart. Grade standards are especially useful in reducing misunderstandings and disputes about quality and improving pricing efficiency by allowing value differences to relate to quality differences. A lack of commodity grades would require traders to negotiate an average price for each commodity. Grades ensure that producers of high-quality farm products are rewarded with premium prices that reflect that level of quality. At the same time, not all buyers require the same level of quality. Those who are satisfied with a lower quality can get a bargain, and those who demand high-quality products are not disappointed by purchasing products of average or low quality. Grading services even help futures markets and expedite bulk storage because commodities owned by various farmers do not have to be kept separate once graded.

Several states act as market facilitators by first developing programs to bring buyers and sellers together physically. One simple, effective strategy is to tell buyers and sellers each other's location. For example, the Connecticut Department of Agriculture publishes the *Connecticut-Grown Marketing Directory*, which lists pick-your-own, cut-your-own, and dig-your-own fruit and vegetable locations throughout the state. This directory also contains the *Connecticut-Grown Crop Availability Calendar*, which tells customers the commodities available at each location and the usual harvest periods. The

New York Department of Agriculture and Markets publishes similar information.

A second strategy states use to bring buyers and sellers together is introducing direct-marketing programs that eliminate intermediaries by having the producers, particularly small and middle-sized, perform some wholesaling functions. By marketing produce directly to retailers, producers bypass the shipper and broker, keeping part of the savings to increase their economic returns and passing the rest on to the consumers. This objective led the Texas Department of Agriculture to organize the Hempstead Small Farmers Cooperative in 1984. Before forming the cooperative, the 17 members sold about one-third of their melon crops at roadside stands and at the Houston Terminal Market for 1" to 3" per pound. The remaining two-thirds of the crops were lost for lack of a market. After organizing the cooperative and receiving training from the department staff, these producers sold nearly all of the following season's crop to over 100 Kroger stores in Houston. The department helps producers form cooperatives and marketing associations to sell goods to processors, grocery chains, and other retailers; and its computer network further enhances sale opportunities by identifying potential buyers and delivering this information to potential sellers.

A third strategy developed in many states to bring buyers and sellers together is the promotion of farmers markets. The Texas Department of Agriculture's farmers market program is modeled after the city-owned Dallas market established in 1948. Each market reflects local conditions and the unique character of the town or city. Many have been developed in cooperation with the Main Street Program of the Texas Historical Commission, aimed at revitalizing downtown areas of small towns. The markets are not state owned or operated, and the Texas Department of Agriculture only helps the markets get started. The department's assistance includes promotional support, legal aid, help in selecting a site, organizational advice, and other technical advice as needed by the local organizers.

The Georgia Department of Agriculture is one of the more aggressive promoters of farmers markets. Unlike the local control found in the Texas markets, Georgia farmers markets rely on the state for their operations. The Atlanta farmers market, which is the largest enterprise of its kind in the world, reported $174 million in sales for fiscal year 1985. Two other markets, in Augusta and Columbus, each had sales exceeding $30 million in the same year (see table 2). The major Georgia markets are open 24 hours a day. They offer a variety of services for farmers and agribusinesses (such as certified public weigh stations and public canneries), and help farmers grade, package, and transport farm commodities. Each major market has an area marketing coordinator who maintains personal contact with regional producers. The marketing division of the department maintains current information on supplies and sales at all farmers markets and makes that information available free to producers and consumers. In addition, festivals and special promotions at the markets help advertise the freshness and abundance of Georgia farm products.

Table 2. Georgia farmers markets sales, costs, revenues, and multiplier effects for fiscal year 1985, and total for fiscal year 1984, in dollars.

| Market | Total sales | Cost | Revenues | Net revenues | Multiplier effect |
|---|---|---|---|---|---|
| Major | | | | | |
| Atlanta | 174,202,194 | 2,139,105 | 2,371,634 | (232,529) | 463,377,836 |
| Augusta | 30,489,696 | 236,062 | 245,856 | (9,793) | 81,102,591 |
| Columbus | 30,874,679 | 208,320 | 196,668 | 11,641 | 82,126,646 |
| Macon | 4,928,227 | 347,698 | 211,272 | 136,426 | 13,109,083 |
| Savannah | 10,193,382 | 223,997 | 98,200 | 125,797 | 27,114,395 |
| Thomasville | 20,403,929 | 331,247 | 100,431 | 230,816 | 54,274,450 |
| Total major | 271,092,107 | 3,486,429 | 3,224,061 | 262,358 | 721,105,001 |
| Seasonal | | | | | |
| Albany | 300,000 | 914 | 1,512 | (598) | 798,000 |
| Athens | 375,000 | 6,888 | 9,963 | (2,805) | 997,500 |
| Blue Ridge | 420,000 | 33,047 | 3,385 | 29,663 | 1,117,200 |
| Cairo | 5,047,053 | 40,036 | 22,456 | 17,581 | 14,382,760 |
| Cordele | 12,756,280 | 198,102 | 40,056 | 158,045 | 33,931,705 |
| Donalsonville | 3,700,000 | 3,726 | 19,980 | (16,254) | 9,842,000 |
| Glennville | 550,000 | 59,764 | 1,350 | 58,414 | 1,463,000 |
| Moultrie | 18,276,170 | 145,750 | 36,848 | 108,903 | 48,614,612 |
| Pelham | 1,081,042 | 5,224 | 17,125 | (11,901) | 2,875,571 |
| Tifton | 1,630,500 | 5,768 | 6,700 | (932) | 4,337,130 |
| Valdosta | 550,000 | 6,034 | 12,454 | (6,421) | 1,463,000 |
| Jesup | — | 262 | 7,200 | (6,938) | — |
| Total seasonal | 44,686,045 | 505,515 | 179,029 | 326,757 | 119,822,478 |
| Total, fiscal year 1985 | 315,778,152 | 3,991,944 | 3,403,090 | 589,115 | 840,927,479 |
| Total, fiscal year 1984 | 305,743,323 | 3,282,001 | 3,213,373 | 68,628 | 813,277,239 |

Source: Georgia Department of Agriculture, 1985.

The Alabama Department of Agriculture and Industries opened its farmers market in Montgomery during the summer of 1986. It is supervised by the State Farmers Market Authority, operates year-round, and offers wholesalers, retailers, and consumers the opportunity to purchase the freshest produce available.

The Massachusetts Department of Food and Agriculture, besides developing farmers markets, has a program that provides nearly 14,000 poor people with food coupons, each valued at $10, to be redeemed only for fresh Massachusetts-grown produce. The objectives of this program are to help farmers and improve the diets of the poor. The initial budget for the program was $100,000.

**The States as Promoters**

In addition to providing market statistics and commodity-grading services and promoting farmers markets, some states put forth even greater efforts to promote their agricultural sectors. Such efforts include advertising, developing products, offering export education, and operating state promotional offices in foreign countries.

One of the fundamental practices in promoting any product is establishing a product trademark or logo, which becomes recognized by customers as a sign of quality. The state logos do not constitute either commodity grades or brand names; instead, they promote a wide variety of commodities. Some examples include

- Fresh from Iowa
- Favor the Maryland Flavor
- Maine Produces
- Taste of Texas
- Something Special from Wisconsin
- Connecticut Grown

Some states go a step further and set up seal-of-quality programs based on standards set by the state rather than USDA. These programs help producers receive premium prices for products of especially high quality; however, the programs have had mixed results. For example, the seal-of-quality program established by the Division of Marketing in the Florida Department of Agriculture and Consumer Services was not successful because grade standards were set too high and producers were unable to offer enough produce that met the standards.

Beyond advertising and seal-of-quality campaigns, some states undertake projects in response to short-run market developments. For example, South Carolina, a leading producer of fresh-market peaches, had a record crop in 1984. Hail and excessive rain reduced shipping volume to only 65% of total production. The situation was further complicated by excellent harvests in other peach-producing states. Prices fell below the break-even level. In response, the Marketing Division of the South Carolina Department of Agriculture helped the state's peach producers move their crop by contacting several leading grocery chains, explaining the varieties available, discussing shipping regions and the merits of shippers, and encouraging them to purchase from South Carolina growers. While statistics are not available, department officials claim that these "jaw-boning" efforts were extremely useful to the South Carolina peach growers that year.

In many states, commodity check-off programs finance the promotion of agricultural products. State laws set amounts per unit of commodities sold to finance research, education, and promotion programs. Some commodity-promotion programs—such as those for beef, dairy, and pork —are national (although states administer them). In general, commodity commissions, boards, or councils take charge of administration, priority identification, collection, and allocation of funds. All such programs must be ratified by producer referendums.

The administration of commodity check-off programs varies across states, but state departments of agriculture consistently maintain a degree of supervision. For example, Georgia has nine agricultural commissions (for products ranging from eggs to peanuts to apples), which are coordinated by the Commodities Promotion Division of the Georgia Department of Agriculture. The division is responsible for assessing, collecting, and disbursing funds. It also administers the nomination and election of members of the commissions, who are nominated at the recommendation of producers. Producer referendums are held every 3 years. The director of the division attends the meetings of all commissions as a representative of the commissioner of agriculture, who is a voting member. Total assessments for all programs in fiscal year 1985 exceeded $4.3 million.

In Iowa, the state legislature established eight commodity check-off programs (for beef, corn, dairy, eggs, pork, soybeans, turkeys, and sheep), one dating back to 1939. All are periodically ratified by producer referendums. Promotion organizations (boards, councils, or commissions) composed of producers make decisions about spending funds. The secretary of agriculture has statutory responsibilities to conduct referendums and to participate, either directly or through a delegate, as an active member of the commodity-promotion organizations. The Iowa beef, corn, egg, soybean, and turkey check-off programs collected $5.8 million in fiscal year 1984.

In recent years, farmers have become concerned with diversifying the commodities they produce. Farmers in many areas of the country are trying to become less dependent on one or a few commodities in efforts to reduce their vulnerability to the vicissitudes of the marketplace. State governments responded by developing programs that help farmers produce new products. For example, the Oregon Department of Agriculture created the New Crops Development Board. The legal functions of this board are to

- identify, endorse, and promote new crop enterprises in Oregon
- act as a clearinghouse for ideas and resources in the development of new crops
- investigate cultural practices, product development, and market potential of worthy new crops
- review new- or alternative-crop research or development proposals
- accept contributions, gifts, or grants from any public or private source
- make grants or disbursements of funds and enter into agreements with public and private agencies
- review and evaluate the results of all grants and agreements

In Iowa, interest in diversified farming led to a cooperative effort between the governor's office, the state legislature, Iowa State University, the Iowa Cooperative Extension Service, and the Iowa Department of Agriculture to design a federal-state program to explore potential increase of production of horticulture crops. Diversified farming, primarily horticulture, is expected to generate an additional $60 million in Iowa over 5 years. (These revenues represent both reduced Iowa purchases of horticultural products from other states and increased production within the state.)

The Iowa Department of Agriculture was also instrumental in forming the Meat Export Research Center at Iowa State University in 1984. The first of its kind in the country, the center intends to develop new high-value-added meat products for the export market. Products under investigation include liver paté, shelf-stable sausage, freeze-dried products, and flaked and formed products.

Active promotion of domestic markets for agricultural products also includes educational programs to improve human nutrition. For example, the Maine Dairy and Nutrition Council developed a statewide training program for elementary and secondary school teachers aimed at incorporating nutrition lessons into the curriculum.

The Wisconsin Department of Agriculture, Trade and Consumer Protection has tried several other approaches to selling the state's main farm commodities. Promotional endeavors focused on helping agribusiness groups through restaurant and consumer shows in Illinois, Minnesota, and Wisconsin. Educational workshops on cheese and sausage were held in Arizona, Georgia, Massachusetts, and Iowa. The World Dairy Expo in Madison attracted a record number of international visitors—1,324 from 54 countries—in 1984. The department also represented several agribusiness concerns at the Wisconsin Food Festival held in Puerto Rico. Additional undertakings in the People's Republic of China, Japan, the Middle East, Central and South America, and London promoted Wisconsin food products. The marketing division also worked with foreign companies that have invested in Wisconsin cheese plants.

Trade shows help local agribusinesses expand their markets beyond state and national boundaries. For example, exhibits at the U.S. International Food Show may be shown in the state pavilion. Ohio subsidizes participants in the Ohio pavilion to enable smaller firms to participate.

Oklahoma has developed a low-key marketing program that consists of raising public awareness of the different features of the international marketing process. Staff members of the Oklahoma Department of Agriculture participate in local and state agricultural committees and organizations and state, national, and international trade shows to increase awareness in and availability of the agricultural export market. General channels communicate relevant developments, statistics, and implications to the state's food industry. Organizations such as the state and local chambers of commerce are part of the department's program for advice, direction, cooperation, and promotion of Oklahoma farm exports. In addition, the state publishes and updates an export directory in seven languages, listing Oklahoma firms engaged in the export of food, agricultural products, and related services and technologies.

Individual farmers and small and medium-sized processors are often unable to enter lucrative foreign markets because of limited experience and a lack of financial resources or because business contacts are available only to larger corporate sellers. Some states intensified their efforts to increase foreign-market opportunities for all agricultural producers. For example, the Texas Department of Agriculture helps small-farm owners develop producer and marketing cooperatives capable of selling directly to foreign buyers. Marketing specialists in the department speak Spanish, French, Chinese, Arabic, German, and Dutch. Many are natives of countries where they promote Texas products. These specialists work effectively with buyers and government officials in foreign countries as well as with Texas suppliers. They travel around the world to develop business contacts and set up trade missions. The department's referral system—which contains the names of producers, commodity groups, brokers, wholesalers, bankers, and transportation companies and other related information— helps potential exporters identify sales opportunities. The network is tied into USDA's computerized trade-lead system that gathers buyer inquiries daily. This network allows a Texas supplier to have direct contact with a buyer anywhere in the world. Department officials believe this system gives the state's farm products an edge that benefits the producers.

California ranks first among the states in total agricultural production and in the top three in farm exports. The state has 28 crops that depend on foreign customers for more than half of their sales. Approximately one-fourth of the state's farm output is exported. However, California's farm exports have declined in recent years and state officials fear that some of this decline is due to a lack of aggressiveness in seeking out foreign markets for the state's farm community. Table 3 compares expenditures in state foreign-market development programs for agricultural products. California officials cite these data as evidence that funding for farm-export development is inadequate to make an impact on the state's markets. They point out that although some efforts are made by the California State World Trade Commission, its emphasis is not on agricultural products.

Table 3. Expenditures for farm export programs and value of food exports, selected states.

| state | Food export development budgets (in millions) | Value of Fiscal year | Value of food exports (in billions) | farm sales (in billions) |
|---|---|---|---|---|
| California | .3 | 1985 | 3.0 | 13.5 |
| Florida | 4.7 | 1982 | .548 | 3.8 |
| Texas | 3.4 | 1982 | 2.5 | 10.1 |
| New York | 2.5 | 1982 | — | 2.6 |
| Oregon | 2.0 | 1984 | .513 | 1.7 |
|  | 3.0 | 1985 | — | — |
| Michigan | 2.3 | 1982 | .750 | 2.5 |
| North Carolina | 1.9 | 1982 | — | 3.2 |

Source: California Department of Food and Agriculture, 1985.

The Foreign Agriculture Service (FAS) of USDA is a reliable source of information about international markets. However, the complexity and size of FAS are barriers to small and medium-sized firms that could benefit from this market information. For these companies or commodity organizations, state agencies serve as liaisons to retrieve information from FAS. The Ohio Department of Agriculture is one agency that is familiar with this system and collects and disseminates the information.

Aggressive marketing states, such as Ohio and Texas, have livestock-export terminals. These terminals alleviate part of the transportation costs and time involved in international quarantines. The Wilmington, Ohio, facility can hold over 40 horses, 160 hogs or sheep, and 120 cattle.

In summary, states are more actively marketing their farm products. The information in table 1 indicates that during fiscal years 1985 and 1986, 6 of 23 states reporting market-promotion expenditures spent over $1 million while 9 spent at least $500,000 to promote their farm products in domestic and international markets. Georgia, Minnesota, and New York spent nearly \$5 million each. Although state officials claim a high rate of return on state resources used to promote agricultural products, the information available is not sufficient to draw definite conclusions. At first glance, states appear to be playing a zero-sum game; that is, one state gains at the expense of another's loss. Nevertheless, officials in a number of states insist that agricultural marketing programs will only succeed when they are conducted by agricultural agencies and incorporated into agencies responsible for overall market development, which may be biased in favor of other fields such as high technology.

## STATE PROGRAMS FOR SOIL AND WATER CONSERVATION

Soil and water conservation divisions of state departments of agriculture are charged with the protection and efficient use of soil and water resources in each state. These divisions are frequently the state management agencies for agricultural nonpoint-source water-pollution control. The heart of the different programs lies in the soil and water conservation districts of these states.

The operations of the Oregon Soil and Water Conservation Division represent a comprehensive approach to soil and water concerns found in many other states. The division has three program functions: administrative, interagency, and district. The administrative functions provide support to the 47 soil and water conservation districts in the state. Administrative support includes

- assisting the district boards of directors in planning and implementing conservation programs
- administering contract, grant, and matching-fund programs for the districts
- training directors of the districts
- obtaining cooperation from other federal, state, and local agencies in soil and water conservation programs
- providing information to enhance awareness and opportunity for public involvement in district programs

The interagency functions allow the division to represent the state's department of agriculture in state-level activities. The division plans and manages agricultural nonpoint-source water-quality programs, participates in statewide water-resource planning, and cooperates with other agencies to establish priorities for conservation programs. The district functions assist landowners, land managers, and local governments in carrying out on-the-ground conservation measures. District functions include

- providing technical assistance in cooperation with the Soil Conservation Service of USDA

41

- carrying out responsibilities for the nonpoint-source water-quality program
- initiating group and interagency conservation plans
- providing soil and other resource information for local comprehensive plans

The states have developed several programs to preserve and protect land and water resources and to control pollution and soil erosion. Farmland-preservation programs have been developed in many states to address these issues.

Under Wisconsin's farmland-preservation law, for example, farmers are eligible for tax credits if their land is preserved for agricultural use, either by an individual farmland preservation agreement or by an exclusive agricultural zoning ordinance. The Wisconsin Department of Agriculture, Trade, and Consumer Protection

- helps counties prepare farmland-preservation maps
- administers farmland-preservation agreements with qualifying landowners
- helps counties, towns, cities, and villages prepare and administer exclusive agricultural zoning ordinances
- coordinates the farmland-preservation program with the department of revenue, which administers farmland-preservation tax credits

The Connecticut Department of Agriculture also has a farmland-preservation program. The state legislature gave Connecticut's commissioner of agriculture the authority to purchase development rights to agricultural land. The purchase of a development right to a farmer's land protects the farm economy by setting aside land to be used only for farming and helps keep the price of land within the reach of farmers by reducing the speculative component and maintaining its agricultural value. A farmer's participation in this program provides working capital to let the farm operations become more financially stable.

The Massachusetts Department of Food and Agriculture developed a similar rights-purchase program through which over 200 farms and 21,000 acres have been preserved for agriculture at an approximate cost of $45 million.

## STATE PROGRAMS FOR AGRICULTURAL FINANCING

Historically, the federal government has dominated the financing of agricultural producers. However, the recent financial difficulties of increasing numbers of farmers have drawn the attention of state governments and have resulted in the development of a variety of state financial programs including short-term operating loans, long-term real estate loans, interest-rate buy-down programs, and beginning-farmer loans. A state farm-financing authority usually administers these loans, which are financed by tax-exempt bonds. Some states have very little of this activity, other states have modest programs, and still other states have aggressive programs. Likewise, the results of these programs vary from state to state. Some states have discontinued them, not necessarily because of poor results, but often because of the difficult fiscal conditions of the state governments.

North Dakota's experience is noteworthy because of its apparent political support, longevity, success, and unique nature. The North Dakota legislature established the Bank of North Dakota in 1919 to encourage and promote agriculture, commerce, and industry. It was a political result of the populist movement, which began in the late nineteenth century, because citizens believed that North Dakota farmers were being taken advantage of by out-of-state interests. Because most banks in those days were small, adequate financing was difficult to obtain. The state legislature hoped that a state-owned bank would alleviate some of the problems. The bank has over 700 farm-ownership loans totaling over $30 million in addition to nonagricultural loans similar to those found in most commercial-bank loan portfolios. The Bank of North Dakota is the only one of its kind in the nation.

## STRUCTURES OF CENTRALIZED STATE ORGANIZATIONS

The organizational structures of departments of agriculture vary across states, but the following divisions are common: administrative, animal industry, plant industry, marketing, consumer services, and conservation (see figure 1).

### Divisional Functions of State Departments of Agriculture

An administrative division is typically responsible for fiscal and personnel management, legal affairs, public information, data processing, and department planning. Some administrative divisions also conduct agricultural financing programs, regulate weights and measures, and provide agricultural statistics services.

An animal industry division typically focuses on animal health (mainly animal-disease control). Its activities include licensing, inspecting, and quarantining animals and operating diagnostic laboratories. A principal objective is to keep the state free of brucellosis. Animal industry divisions fight brucellosis through spot-area testing, whole-herd testing, change-of-ownership testing, imported-cattle testing, and infected-herd depopulation. However, the elimination of animal diseases must be a joint effort of farmers, veterinarians, and

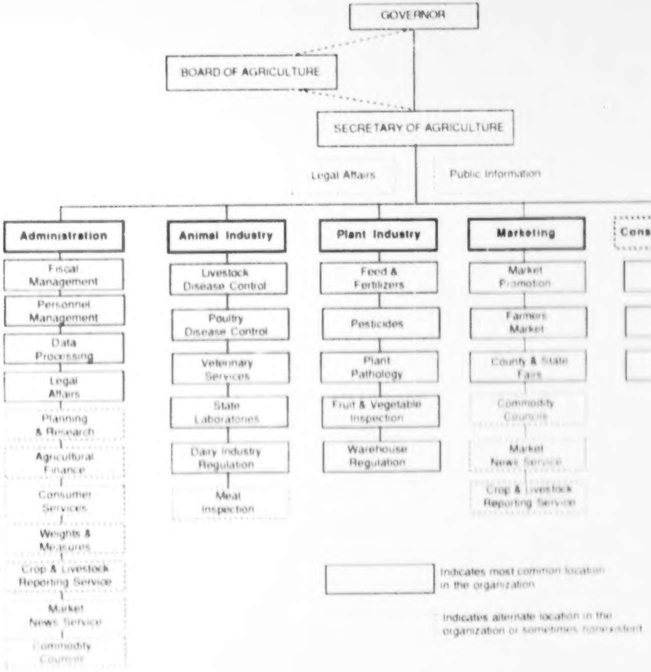
GOVERNOR
BOARD OF AGRICULTURE
SECRETARY OF AGRICULTURE
Legal Affairs
Public Information
Administration
Fiscal Management
Personnel Management
Data Processing
Legal Affairs
Planning & Research
Agricultural Finance
Consumer Services
Weights & Measures
Crop & Livestock Reporting Service
Market News Service
Commodity Councils
Animal Industry
Livestock Disease Control
Poultry Disease Control
Veterinary Services
State Laboratories
Dairy Industry Regulation
Meat Inspection
Plant Industry
Feed & Fertilizers
Pesticides
Plant Pathology
Fruit & Vegetable Inspection
Warehouse Regulation
Marketing
Market Promotion
Farmers Market
County & State Fairs
Commodity Councils
Market News Service
Crop & Livestock Reporting Service
Consumer Services
Education
Food Inspection
Weights & Measures
Conservation
Soil & Water
Non Point Pollution
Land Preservation
Indicates most common location in the organization
Indicates alternate location in the organization or sometimes nonexistent

Figure 1. Common organization structure of state departments of agriculture.

state government personnel. A successful state brucellosis program reduces the risk of substantial economic losses for livestock producers and allows cattle to move across state boundaries with fewer restrictions and testing. Animal industry divisions conduct similar programs to control other cattle diseases as well as poultry, swine, equine, and other livestock diseases.

A plant industry division typically conducts crop-production programs to test feed, fertilizer, pesticide, and seed. The division usually has seed and seed-pathology laboratories, and it produces and distributes seed developed at in-state and out-of-state experiment stations. It also regulates the activities of agribusinesses that produce and distribute fertilizer, lime, feed, and grain, and it audits and inspects state-licensed grain warehouses.

A marketing division is typically responsible for promoting state farm products. The division usually provides commodity-grading services, promotes state-produced products at domestic and foreign markets, and helps develop farmers markets. Some divisions of marketing provide comprehensive marketing programs by developing commodity-market news services and coordinating commodity-assessment boards.

A consumer services division is typically responsible for inspecting food and regulating weights and measures.

Departments of agriculture in all states are involved in conservation through divisions of soil and water conservation. The duties of the divisions are similar across states, with differences mainly in the nature of the soil and water conservation districts. These divisions often manage state nonpoint-source water-pollution control, farmland-preservation, and other programs directed toward conservation and the efficient use of renewable natural resources.

## Executive Functions of State Departments of Agriculture

Figure 1 illustrates the typical relationship between the department of agriculture's executive official and the governor of the state. Two channels of communication and policy implementation are common at the executive level: direct access to the governor; and access through a board of agriculture. In some states the chief agricultural official is elected; in others that individual is appointed by the governor.

In general, the agricultural official coordinates all department activities and all state agricultural agencies, participates in identifying priorities and setting policies for agricultural development, and most important, is the state's spokesman for agriculture. Recent publications prepared by the state departments of agriculture in New York and Texas provide examples of the roles of agricultural officials in diagnosing, analyzing, planning, and identifying policy options for the farm economies of those states. The officials' authority and responsibilities vary across states (see table 4).

Table 4. Titles, methods of attaining office, and primary responsibilities of agricultural officials in 16 states.

| State | Official's title | Elected/ appointed | Primary responsibilities |
|---|---|---|---|
| Alabama | Commissioner of Agriculture and Industries | elected | • executing agricultural and industrial policies<br>• determining the state's industrial potential<br>• collecting statistics on industrial development<br>• promoting industries that use farm products |
| California | Director of Food and Agriculture | appointed | • promoting and protecting the agricultural industry |
| Connecticut | Commissioner of Agriculture | appointed | • promoting agricultural development<br>• collecting and publishing statistical information relating to agricultural industries and interests<br>• visiting all areas of the state at least once a year to investigate methods and wants of husbandry<br>• adapting agricultural products to the soil, climate, and markets<br>• disseminating agricultural information |
| Delaware | Secretary, Department of Agriculture | appointed | • supervising, directing, and administering the department |
| Florida | Commissioner of Agriculture and Consumer Services | elected | • determining the state's agricultural needs<br>• making recommendations to the governor and legislature<br>• providing regulation and inspection services<br>• extending the distribution and sale of the state's farm products in national and foreign markets<br>• fostering cooperation between producers and distributors |

(continued from page 30)

| State | Official's title | Elected/ appointed | Primary responsibilities |
|---|---|---|---|
| Georgia | Commissioner of Agriculture | elected | • administering and enforcing state laws regarding production, processing, labeling, and selling<br>• acting as spokesman and principal advocate of the state's farm products and producers<br>• acting as chief defender of consumer rights |
| Louisiana | Commissioner of Agriculture | elected | • administering the department<br>• adopting departmental policies<br>• assuring compliance with laws<br>• issuing regulations |
| Minnesota | Commissioner of Agriculture | appointed | • promoting agricultural development<br>• investigating market conditions<br>• assisting farmers, producers, and consumers to organize and manage cooperatives and cooperative marketing<br>• assisting in establishing local markets and ensuring the successful operation of cooperatives, companies, or municipalities |
| Missouri | Director of Agriculture | appointed | • supervising all state departments that regulate agriculture and horticulture<br>• overseeing state fairs<br>• cooperating with the college of agriculture of the university in all beneficial ways |
| New Mexico | Director, Department of Agriculture | appointed[a] | • administering, executing, and implementing the directives of agricultural policy |
| New York | Commissioner of Agriculture and Markets | appointed | • executing state laws and departmental rules regarding agriculture, horticulture, farm and dairy products, storage, transportation, marketing, and distribution<br>• investigating costs of food production and marketing<br>• promoting and developing the state's resources improving conditions of rural life |
| North Carolina | Commissioner of Agriculture | elected | • implementing the policies of the department<br>• serving in the governor's Council of State |

(continued from page 31)

| State | Official's title | Elected/ appointed | Primary responsibilities |
|---|---|---|---|
| North Dakota | Commissioner of Agriculture | elected | • formulating policies for the department<br>• disseminating agricultural information to the governor, legislature, and public<br>• leading the formulation of policies affecting farm industry<br>• advocating the farmer's needs at state and national levels |
| Oregon | Director of Agriculture | appointed | • executing all departmental matters<br>• enforcing all regulatory, inspection, and market-development provisions<br>• undertaking long-range planning to develop and promote agriculture resources |
| South Carolina | Commissioner of Agriculture | elected | • instituting and assisting studies, surveys, and investigations of all matters pertaining to agriculture and related economies |
| Virginia | Commissioner of Agriculture | appointed | • executing laws related to agriculture<br>• investigating subjects to improve agriculture, the use of fertilizers, and the attraction of immigrants and capital<br>• supervising trade in commercial fertilizers and other inputs to protect farmers<br>• disseminating information related to soil, climate, health, and markets of the state as well as industrial opportunities |

Source: State departments of agriculture.

[a] Appointed by the board of regents of New Mexico State University

## State Boards and Commissions of Agriculture

In the states where they operate, boards and commissions of agriculture set policies and design the frameworks in which departments and agricultural agencies operate. The characteristics and responsibilities of these boards or commissions are somewhat uniform among states. Common duties include

- overseeing the expenditures and policies of the central organization
- considering the agricultural and industrial needs of the state
- setting rules and regulations
- conducting appropriate studies

- overseeing cooperation between federal and state agencies
- advising the agricultural official and the governor
- promoting agriculture and agricultural products
- appointing the state's agricultural official

The number of members and membership criteria vary throughout the states (see table 5). Most boards or commissions are small—with 6 to 10 members; others are larger. Most state boards include the agricultural official, farmers, representatives of agricultural industries, and representatives of state universities or colleges. Some include citizens, representatives of industry, and the governor.

The Kansas State Board of Agriculture, which is more than 100 years old, deserves special consideration because it has several unique characteristics. Delegates to an annual meeting are selected from each county or district agricultural society, state fair, county farmer's institute, farm bureau association, livestock association, or any other similar organization with at least 100 voting members. Any individual who collects over 150 signatures of qualified electors who are not voting members of any of the already-included organizations is also a delegate. The delegates elect board members for 3-year terms. The board elects a president, a vice president, and a treasurer for 1-year terms and a secretary for a 2-year term. The board has six operating units: administrative, inspection, plant health, markets and international development, statistics, and water resources. Attempts to reorganize the board, such as having a secretary appointed by the governor and including the State Grain Inspection Department, were defeated recently in the legislature.

Each state board or commission differs in its meeting schedule, appointment of officers, term of service, and reimbursement of members. Some state boards or commissions are advisory groups; others set policy. These differences, however, cannot be linked to the successes or failures of any state group and are, therefore, equally valid.

Table 5. Numbers of members and membership compositions of state boards and commissions of agriculture, nine states.

| State | No. of members | Membership composition |
|---|---|---|
| Alabama | 10 | • governor, chair<br>• commissioner of agriculture and industries<br>• director of the cooperative extension service<br>• 4 outstanding farmers<br>• 3 outstanding industry leaders |

(continued from page 33)

| State | No. of members | Membership composition |
|---|---|---|
| California | 15[a] | • representative of the Agricultural Sciences Division of the University of California<br>• representative of the agricultural department of a state university or college offering agricultural curricula<br>• 7 representatives of agricultural industries, must be from different congressional districts<br>• 2 representatives of agricultural industries statewide<br>• 4 citizens who have no financial interest in agriculture but who have an interest in or knowledge of the environment |
| Kansas | — | • delegates from each county or district agricultural society, state fair, county farmer's institute, farm bureau association, livestock association, or any similar organization with at least 100 voting members<br>• anyone collecting over 150 signatures of qualified electors who are not voting members of any of the organizations already included |
| Kentucky | 9[b] | • commissioner of agriculture, chair (ex officio)<br>• director of the agricultural experiment station (ex officio)<br>• 7 farmers appointed by the governor |
|  | 18[c] | • governor<br>• commissioner of agriculture<br>• secretary of commerce<br>• 15 farmers chosen from each congressional<br>• district and from the state at large |
| Michigan | 5 | • bipartisan members appointed by the governor and confirmed by the senate |
| New Jersey | 8 | • agricultural producers, nominated by the governor, elected at the state agricultural convention, and confirmed by the senate |
| New Mexico | — | • New Mexico State University's board of regents |
| Virginia | 10 | • one for each congressional district (at least 6 must be farmers), appointed by the governor and confirmed by the senate<br>• president of Virginia Tech (ex officio) |
| Wyoming | 7[d] | • 5 representatives of different congressional districts, appointed by the governor and confirmed by the senate<br>• governor<br>• dean of the College of Agriculture of the University of Wyoming |

Source: State boards or commissions of agriculture.

[a] All appointed by the governor.
[b] Kentucky State Board of Agriculture.
[c] Council on Agriculture, Kentucky.
[d] No more than 3 of the appointed members can be of the same political party.

## Summary

While most of the divisional functions of state agricultural agencies are similar, the scope of executive functions and operations varies significantly from state to state. In states such as Delaware and New Mexico, the chief agricultural official, who is appointed, has little opportunity to develop independent policies and is primarily an administrator. In contrast, the Georgia, North Dakota, and Texas commissioners of agriculture, who are elected officials, have greater mandates that include administering the department and acting as the leading advocate for the farm sector. Although it is tempting to attribute the larger roles to elected officials, appointed agricultural officials in California, Connecticut, Minnesota, and Oregon play important roles in agricultural policy development and advocacy. Therefore, it is unfair to assess the effectiveness of the official's role and authority based only on the means of obtaining office.

State boards and commissions of agriculture influence the scope of executive functions of departments of agriculture. In some states, they are public forums for formulating policies and developing agricultural programs. In other states they are perfunctory oversight committees. Although membership in these bodies usually represents a diversity of interests in the states, the way memberships are attained differs. The Kansas State Board of Agriculture is especially noteworthy for its populist structure, with a potential membership numbering in the hundreds. In New Mexico, state agricultural policy and activities are directed by the board of regents of the land grant institution, New Mexico State University. In many states members are appointed by the governor and confirmed by the legislature, with provisions requiring all regions to be represented. In addition, major agricultural interests such as the farm bureau, the cooperative extension service, the agricultural experiment station, colleges of agriculture at state universities, individual farmers, and agribusiness are represented. Overall, membership in these bodies offers the opportunity to establish coordination among agriculture-related groups in the public and private sectors and a forum for discussing issues of interest to the agricultural community.

## STATE AGRICULTURAL BUDGET COMPARISONS

Any description of the role of state government in agriculture must include attention to how much money states spend to support agricultural programs; however, interstate comparisons are difficult. Some state agricultural agencies carry out programs that do not directly relate to the farm sector. In other states, agencies conduct agricultural programs but are not a part of the agriculture department. Therefore, any comparison of the amount of resources spent by the states must be tempered by this lack of uniformity in organizational structure and programs.

Budget data for fiscal year 1985, the most recent information available for 43 states, are given in table 6. These estimates are based on the spending of the state's department, board, or commission of agriculture, adjusted to reflect only the direct commitment of the state public sector to agriculture. Funds spent by agricultural agencies in nonagricultural programs are excluded, such as the Connecticut Department of Agriculture's canine-control program, which represented nearly 17% of the budget, and the $4.6 million spent by the Wisconsin Department of Agriculture, Trade and Consumer Protection for port inspection of grain produced in states other than Wisconsin. Commodity check-off funds and forestry division expenditures are also excluded. On the other hand, agricultural programs not managed by agriculture departments are included in the budget estimates. Finally, federal expenditures in the states and state funds appropriated for land-grant universities, agricultural experiment stations, and extension services are excluded from budget estimates.

The size of a state's farm sector seems to be related to the amount of public funds committed to agriculture. In the 43-state sample shown in figure 2, California and Florida rank first and ninth in gross farm sales in the nation, and their departments of agriculture had the largest budgets. Both states are top fruit and vegetable producers—these commodities require inspection and grading services that are more labor intensive than the same services for grains, which are largely automated. Mississippi had the median state agricultural budget at $12.9 million, and New York had the median farm-sector gross sales at $2.5 billion. North Dakota had the smallest state agricultural budget at less than $2 million, and Nevada had the least gross farm sales at $200 million. For 32 of the 43 states sampled, both budget and gross farm sales were above the median or both were below the median. Of the 11 states that did not conform to this pattern, Nebraska and Virginia deviated the most. Nebraska's farm sector had gross farm sales about three times the median, although its state public expenditures in agriculture were well below the median. On the other hand, Virginia had gross farm sales well below the median and a state agricultural budget nearly twice as large as the median.

Table 6. Estimated state agricultural spending, selected states, fiscal year 1985.

| State | Budget (in thousands) | State | Budget (in thousands) |
|---|---|---|---|
| Alabama | 13,000 | Nebraska | 7,770 |
| Arizona | 9,045 | Nevada | 2,451 |
| Arkansas | 8,100 | New Jersey | 11,282 |
| California | 134,236 | New Mexico | 4,407 |
| Colorado | 9,598 | New York | 33,969[a] |
| Connecticut | 2,426 | North Carolina | 35,678 |
| Delaware | 2,078 | North Dakota | 1,782 |
| Florida | 69,998 | Ohio | 13,180 |
| Georgia | 28,451 | Oklahoma | 13,723 |
| Idaho | 7,875 | Oregon | 13,650 |
| Illinois | 43,923 | Pennsylvania | 25,082 |
| Kansas | 15,351[b] | South Carolina | 3,287 |
| Kentucky | 9,461 | South Dakota | 3,780 |
| Louisiana | 14,961 | Tennessee | 8,698 |
| Maine | 7,884 | Texas | 20,358 |
| Maryland | 18,330 | Utah | 6,000 |
| Massachusetts | 5,002 | Virginia | 25,945 |
| Michigan | 42,006[a] | Washington | 20,000 |
| Minnesota | 27,817 | West Virginia | 7,463 |
| Mississippi | 12,890 | Wisconsin | 21,590 |
| Missouri | 12,970 | Wyoming | 4,489 |
| Montana | 2,423 | | |

Source: State departments of agriculture, unpublished data.

[a] Fiscal year 1986.
[b] Includes federal receipts.

While absolute amounts of public spending in agriculture-related programs vary widely among states, amounts spent compared to total general expenditures vary less. Figure 3 relates the size of the farm sector (relative to state gross output) to the size of public funds dedicated to agriculture (relative to state general expenditures) for the 43-state sample. The variation is greater among states in farm-sector output relative to gross state output than between state public funds dedicated to agriculture relative to total state public expenditures.

States with larger proportions of their gross state products coming from agriculture do not necessarily devote larger proportions of state public funds to agriculture. For example, South Dakota and North Dakota receive 16.1% and 13.7%, respectively, of their gross

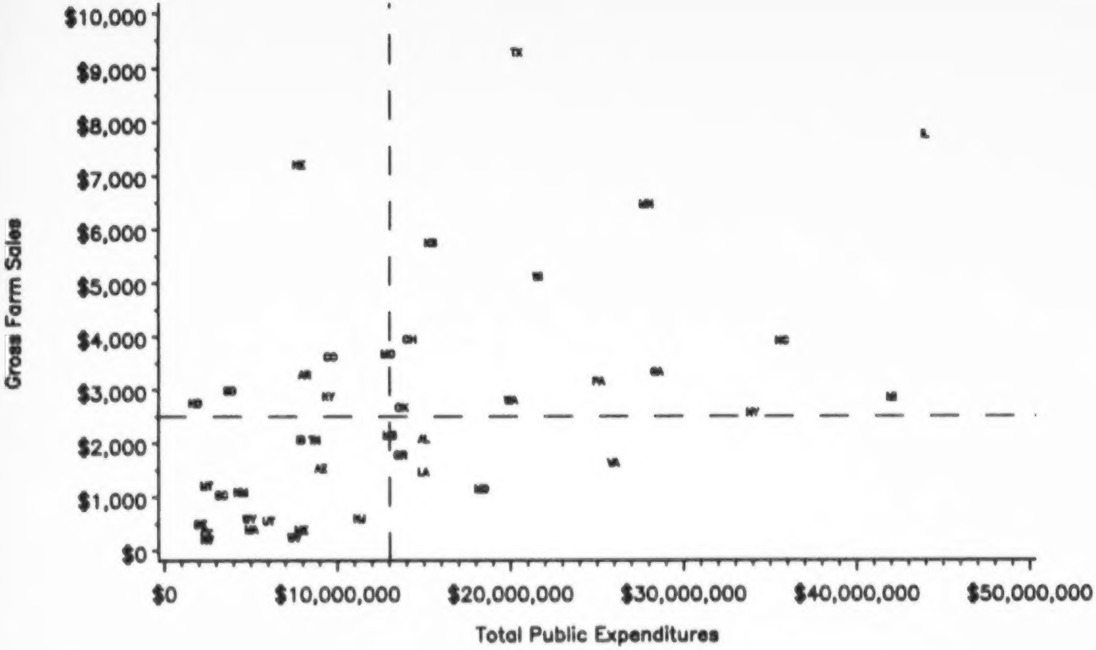

Figure 2. Gross farm sales and total spending of public funds in agriculture.

state products from the agricultural sector; however, only .41% of South Dakota's general expenditures and only .13% of North Dakota's are in agriculture. All the states sampled devote less than 1% of their total expenditures to agriculture, ranging from .06% in Connecticut and Massachusetts to .72% in Florida. Furthermore, states with large farm sectors, measured by gross farm sales, have lower levels of expenditures per farm (see figure 4). If these figures accurately reflect the cost of providing services to the farm sector, economies of scale are present.

State-by-state differences in public funding for agricultural programs are more likely caused by the nature of farm production and the overall amount of state general expenditures than by the size of the farm sector and its importance in the overall economy of each state.

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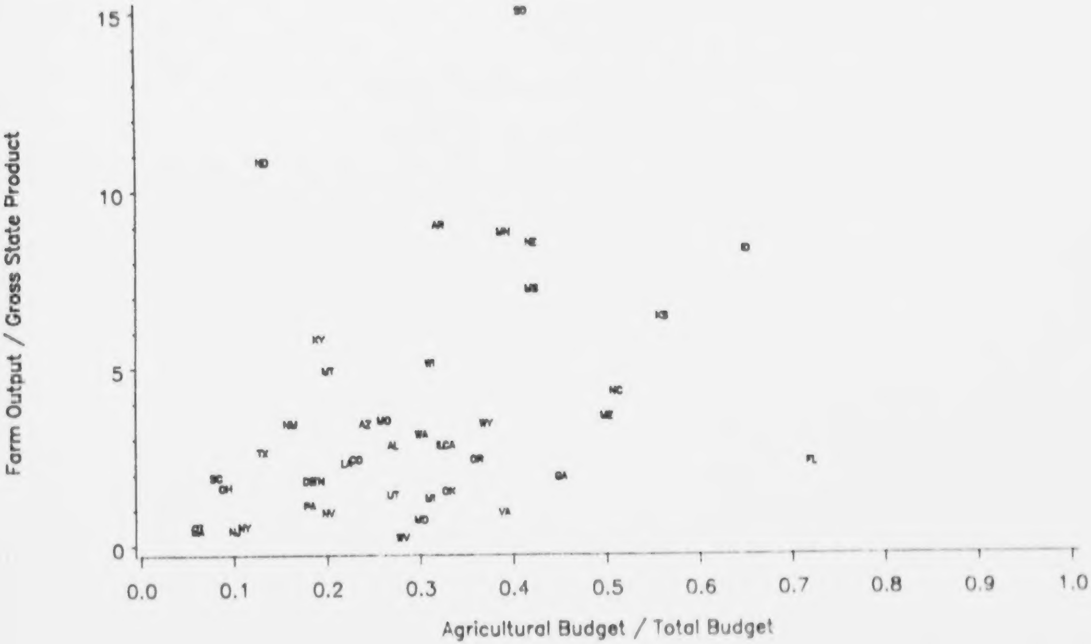

Figure 3. Farm output and expenditures of public funds in agriculture.

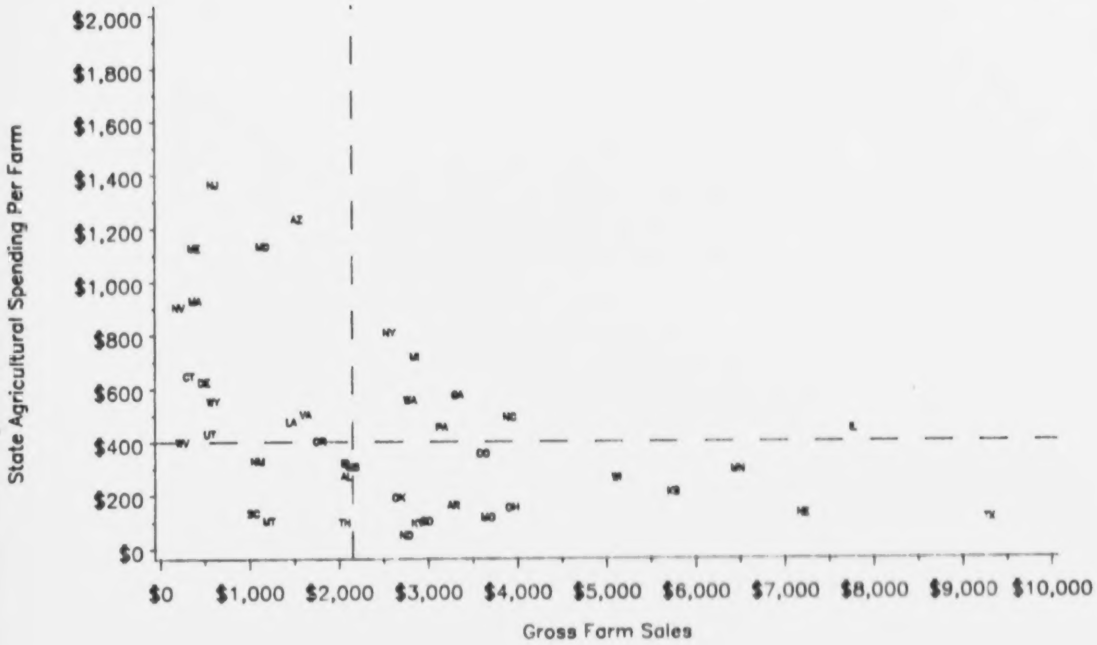

Figure 4. Gross farm sales and per farm public expenditures in agriculture.

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# THE ROLE OF STATE GOVERNMENT IN ARKANSAS AGRICULTURE

Enrique Ospina and Ralph O. Gunderson

This paper describes the characteristics and activities of the public agencies that serve the agricultural sector in Arkansas. First, programs of centralized agricultural agencies of other states are described along with the state agencies that provide such programs in Arkansas. Second, two Arkansas programs that operate under cooperative federal-state agreements are discussed. Finally, the role of the public sector in agriculture and the functions performed by state governments around the country are compared to the role and functions of the public sector serving Arkansas agriculture, and alternative courses of action and implications for agriculture and economic development are identified.

## ORGANIZATIONAL STRUCTURE

The state public sector that serves agriculture in Arkansas consists of a number of agencies that work independently. These agencies perform functions similar to those of central agricultural agencies or departments in other states. The Arkansas agricultural public sector does not have a central department, agency, board, or commission within the executive branch to coordinate the functions of these agencies. The governor appoints the directors of Arkansas agencies that serve agriculture, and they report to the governor either directly or though a liaison.

Public agencies in Arkansas agriculture perform regulatory, promotional, and conservational functions. These agencies are

| | |
|---|---|
| Regulatory | Arkansas State Plant Board<br>Arkansas Livestock and Poultry Commission<br>Arkansas Bureau of Standards |
| Promotional | Arkansas Industrial Development Commission, Division of Marketing and Division of Agriculture Development |
| Commodity check-off programs | Arkansas Soybean Promotion Board<br>Arkansas Wheat Promotion Board<br>Arkansas Rice Research and Promotion Board |

| | |
|---|---|
| | Arkansas Beef Council<br>National Pork Board |
| Conservational | Arkansas Soil and Water Conservation Commission |

## STATE REGULATORY PROGRAMS IN AGRICULTURE

Three agencies regulate Arkansas agriculture: the Arkansas State Plant Board, the Arkansas Livestock and Poultry Commission, and the Arkansas Bureau of Standards.

### Arkansas State Plant Board

The Arkansas State Plant Board was created by Act 414 of 1917. The board originally had 5 members, but legislation through the years has changed the membership to 16 members, as defined by Act 409 of 1975. Legislation also changed the board's jurisdiction and added functions. Act 38 of 1971 made the board an operating division of the Department of Commerce for administrative purposes, but all statutory powers and duties have continued to reside with the board. The Department of Commerce was then eliminated by Act 691 of 1983, and the board became an independent agency of the state government. Act 83 of 1979 gave the board jurisdiction over public warehouses to protect farmers who store grain in those facilities. The director of the board is appointed by the governor.

Programs of the state plant board enhance the conditions of agricultural producers and protect them against pests and diseases through inspections, regulatory programs, and quarantines and through testing, grading, and marketing crops. The rules and regulations are formulated by the board and are enforced by the staff. Currently, the staff includes 128 full-time positions and 44 seasonal positions organized under five divisions:

- ***Administrative division:*** Provides executive direction, management, and coordination to all divisions.
- ***Plant industry division:*** Inspects nurseries and plant growers; regulates pest-control services; enforces Environmental Protection Agency regulations; applies quarantine, eradication, and pest-control measures; surveys for new pests; protects and assists beekeepers. (Many of these programs require cooperation with USDA and other federal agencies.)
- ***Marketing division:*** Inspects and grades fruit, vegetables, and other crops according to USDA standards and licenses, audits, bonds, and inspects (at least once a year) public warehouses that are not subject to federal inspection.

- ***Seeds division:*** Protects agricultural producers to ensure sufficient quality and availability of seed. Also licenses and inspects seed dealers, processors, and producers and certifies seeds.
- ***Feeds, fertilizers, and pesticides division:*** Ensures the availability of these input materials. Ensures that they are properly labeled, registered, and licensed; certifies pesticide applicators under an EPA enforcement grant; and takes appropriate actions when violations occur.

Expenditures of the State Plant Board for fiscal years 1969-70 to 1986-87 are listed in table 1.

Table 1. Budget and expenditures, Arkansas State Plant Board, fiscal years 1969-70 to 1986-87.

| | Expenditures (in dollars) | | Fees[1] (in dollars) |
|---|---|---|---|
| Fiscal year | General revenue | Special revenue | |
| 1969-70 | 48,740 | 646,599 | 406,702 |
| 1970-71 | 50,702 | 678,870 | 758,501 |
| 1971-72 | 55,316 | 749,399 | 846,534 |
| 1972-73 | 56,137 | 777,645 | 824,374 |
| 1973-74 | 82,132 | 1,035,163 | 971,330 |
| 1974-75 | 90,007 | 1,081,066 | 961,786 |
| 1975-76 | 249,792 | 1,185,486 | 1,266,674 |
| 1976-77 | 238,491 | 1,176,648 | 1,410,147 |
| 1977-78 | 417,132 | 1,326,457 | 1,396,593 |
| 1978-79 | 524,964 | 1,582,406 | 1,510,933 |
| 1979-80 | 565,367 | 1,698,382 | 1,691,771 |
| 1980-81 | 596,037 | 1,793,023 | 1,653.982 |
| 1981-82 | 750,743 | 1,939,948 | 1,743,688 |
| 1982-83 | 649,403 | 1,926,204 | 2,116,500 |
| 1983-84 | 693,480 | 2,154,638 | 2,248,428 |
| 1984-85 | 772,356 | 2,315,742 | 2,204,601 |
| 1985-86 | 797,290 | 2,372,518 | 2,174,776 |
| 1986-87 | 734,924 | 2,284,329 | 2,158,066 |

Source: Arkansas Department of Finance and Administration, unpublished data.

[1] Fees:

| Type | Approximate portion of 1986-87 income |
|---|---|
| Fertilizer-tonnage fees, lime-tonnage fees, feed-inspection and -exemption fees, fertilizer penalties, registration and soil-amendment fees, pesticide, 2-4D, and commercial applicator fees | 44.5% |
| Seed fees | 35.6% |
| Nursery and plant fees, commercial pest-control fees | 16.8% |
| Fruit- and vegetable-inspection fees | 3.1% |

## Arkansas Livestock and Poultry Commission

Act 409 of 1907 established the board of control of the agriculture experiment station to supervise livestock sanitary work and prevent the introduction and spread of contagious and infectious diseases in animals. Several legislative acts through the years have changed the name and composition of the commission. The current commission was established by Act 87 of 1963 and has seven members. Members are appointed by the governor, with the advice and consent of the senate, to serve staggered, 7-year terms. Each congressional district is represented. Following Act 38 of 1971, the commission operated as an administrative division of the Department of Commerce, although all statutory powers and duties were within the commission's authority. The commission was made an independent agency of state government by Act 867 of 1981. The director of the commission (who is also the state veterinarian) is appointed by the governor, with the consent of the senate, and serves as an ex officio member of the commission.

Although 155 positions are authorized for the commission, several positions are vacant because of shortages in state revenues and loss of federal funds.

The commission operates through four programs. The first three are financed by state general revenue funds; the last from fees paid by participating poultry plants and from federal reimbursements.

- ***Administrative program:*** Coordinates accounting, personnel, and administrative services; disburses construction funds for state and local fairgrounds; registers brands.
- ***Laboratory services program:*** Provides specific diagnostic procedures through two laboratories—one in Little Rock and one in Springdale (managed by the poultry industry under contract with the commission)—to assist livestock and poultry producers in disease-control programs.
- ***Livestock inspection and disease control program:*** Working with the USDA Veterinary Services, provides control over interstate and intrastate movements of livestock to ensure compliance with state and federal regulations. The program also designs and implements measures for controlling and eradicating livestock diseases, with emphasis on brucellosis. (Loss of federal funds for brucellosis control has reduced this program since 1984.)
- ***Egg and poultry inspection program:*** Oversees standardizing and grading egg and poultry products with trained personnel in all processing plants (according to federal-state cooperative agreements). This program also plans and implements promotional projects to increase the demand for eggs and poultry.

Expenditures for fiscal years 1969-70 to 1986-87 are listed in table 2.

Table 2. Budget and expenditures, Arkansas Livestock and Poultry Commission, fiscal years 1969-70 to 1986-87.

| Fiscal year | Expenditures (in dollars) General revenue | Federal revenue | Special revenue | Fees[a] (in dollars) |
|---|---:|---:|---:|---:|
| 1969-70 | 598,487 | 192,385 | 228,694 | 256,014 |
| 1970-71 | 485,930 | 205,874 | 281,232 | 302,123 |
| 1971-72 | 543,288 | 268,253 | 325,039 | 254,691 |
| 1972-73 | 615,617 | 348,412 | 387,130 | 335,563 |
| 1973-74 | 721,735 | 395,734 | 453,128 | 376,741 |
| 1974-75 | 862,269 | 445,339 | 494,558 | 409,678 |
| 1975-76 | 1,187,218 | 412,479 | 572,706 | 443,318 |
| 1976-77 | 1,265,241 | 447,059 | 772,325 | 676,857 |
| 1977-78 | 1,424,912 | 220,062 | 1,351,475 | 1,516,967 |
| 1978-79 | 1,646,272 | 288,838 | 1,550,153 | 1,532,598 |
| 1979-80 | 1,676,693 | 1,022,613 | 1,607,513 | 1,530,256 |
| 1980-81 | 1,831,951 | 523,250 | 1,740,189 | 1,970,023 |
| 1981-82 | 1,968,206 | 133,391 | 1,928,306 | 1,921,023 |
| 1982-83 | 2,166,152 | 16,530 | 2,029,155 | 1,865,900 |
| 1983-84 | 2,331,020 | 0 | 2,487,720 | 1,882,188 |
| 1984-85 | 2,735,284 | 0 | 2,087,810 | 2,187,543 |
| 1985-86 | 3,262,008 | 0 | 2,819,301 | 2,232,785 |
| 1986-87 | 3,436,240 | 0 | 2,498,740 | 2,117,997 |

Source: Arkansas Department of Finance and Administration, unpublished data.

[a] Poultry-inspection fees.

## Arkansas Bureau of Standards

Act 482 of 1963 created the Weights and Measures Division, under the authority of the Arkansas State Plant Board. Powers and duties included testing, enforcing, and inspecting weighing. Act 768 of 1977 established the division as a separate agency under the Department of Commerce. Act 691 of 1983 eliminated the Department of Commerce, and weights and measures became a division of the Arkansas Bureau of Standards.

The director of the bureau is appointed by the governor. An administration section coordinates the administrative needs of the divisions. The bureau currently has a staff of 39, allocated to three divisions:

- ***Laboratory division:*** Through the metrology laboratory section maintains state standard of mass, length, and volume; calibrates and certifies official measuring instruments; and provides technical assistance to state government, commerce, industry, and education and research institutions. Through the grain-moisture laboratory, the division develops grain standards and specifies standardized testing techniques, calibration, and examination of public grain-elevator moisture meters.

- ***Petroleum quality division:*** With the mobile laboratory and the main laboratory, assures consumers and industry of the quality of products in all commercial transactions.
- ***Weights and measures division:*** Administers state regulations and laws. The division has two sections: investigative and special testing. Together they protect dealers and consumers in all commercial transactions at the retail level. The division conducts regular inspections of all weighing and measuring devices used commercially in the state. It also inspects packages or amounts of commodities kept, offered for sale, sold, or in the process of delivery to determine whether the amounts contained are in accordance with the law, both in labeling and advertising.

The bureau is funded from state general revenues; however, federal requirements have increased the regulatory and enforcement duties of the bureau without corresponding increases in funding.

## STATE ACTIVITY IN FARM-PRODUCT PROMOTION AND MARKETING

Six agencies promote and market farm products in Arkansas: the Arkansas Industrial Development Commission, through its divisions of marketing and agriculture development; the Arkansas Soybean Promotion Board; the Arkansas Wheat Promotion Board; the Arkansas Rice Research and Promotion Board; and the Arkansas Beef Council. The National Pork Board provides the pork-promotion program.

### Arkansas Industrial Development Commission

The Arkansas Industrial Development Commission (AIDC) was established by Act 404 of 1955. Two divisions are responsible for farm-product promotion and marketing: the marketing division and the division of agriculture development.

The marketing division, created in 1980, promotes Arkansas products in the domestic and international markets. The division funds promotional and advertising campaigns to market agricultural products along with other products of the state and operates two foreign offices, one in Brussels and one in Tokyo.

The division of agriculture development was created by Act 1005 of 1985. The division

- monitors federal and state legislative issues affecting agriculture and advises the governor in those matters
- serves as an ombudsman for the agricultural community

- identifies job creation in agriculture-related business
- identifies new agricultural business for market development
- coordinates agricultural awareness programs
- assists in domestic and international marketing of agricultural products
- identifies problems of the agricultural sector
- develops necessary programs and policies to resolve agricultural problems

The division consists of a director, an assistant director, and a secretary. The division's budget was $84,820 for fiscal year 1985-86 and $77,456 for fiscal year 1986-87.

## Commodity Check-off Programs

Four state agencies offer commodity check-off programs in Arkansas: the Arkansas Soybean Promotion Board, the Arkansas Wheat Promotion Board, the Arkansas Rice Research and Promotion Board, and the Arkansas Beef Council. The National Pork Board provides the pork-promotion program.

**Arkansas Soybean Promotion Board.** The soybean board was authorized by Act 259 of 1971 and approved by producers in a referendum. It has nine members, appointed by the governor, who are soybean producers and must be members of the board of directors of their organizations. Members are nominated by the Arkansas Farm Bureau Federation, the Arkansas Agricultural Council, Riceland Foods, and the Arkansas Soybean Association.

The board promotes the growth and development of the soybean industry in Arkansas through research, market development and promotion, and advertising. Programs of the board are funded by a check-off of 1¢ per bushel. The board funds research projects for the Arkansas Agricultural Experiment Station and market-development programs for the American Soybean Development Foundation. In fiscal year 1985-86, the board funded research projects for a total of $450,000 and market-development programs for an equal amount. The state treasury received about 3% of collections for services provided. The board is administered by the Arkansas Farm Bureau Federation.

**Arkansas Wheat Promotion Board.** Act 283 of 1985 established the wheat board, which was subsequently approved by producers in a referendum. The board has nine members, who are appointed by the governor. Three are nominated from the Arkansas Farm Bureau Federation, two from the Arkansas Agricultural Council, two from Riceland Foods, and two from the Arkansas Wheat Growers Association.

The board promotes the growth and development of the wheat industry in Arkansas through research, market development and promotion, and advertising. A check-off of .5¢ per bushel provides funds for the board. The board funded research projects valued at $89,000 for the Arkansas Agricultural Experiment Station and promotion programs valued at $16,000 for the U.S. Wheat Growers Association in fiscal year 1985-86. The board is administered by the Arkansas Farm Bureau Federation.

**Arkansas Rice Research and Promotion Board.** The rice board was created by Act 283 of 1985 to continue the work of its voluntary predecessor, the Arkansas Rice Research Board. Producers subsequently approved it through a referendum. The board has nine members, appointed by the governor, who are rice producers and must be members of the board of directors of their organizations. Members are nominated by the Arkansas Farm Bureau Federation, the Arkansas Agricultural Council, Riceland Foods, and the Arkansas Rice Growers Association.

The board promotes the growth and development of the rice industry in Arkansas through research, market development and promotion, and advertising. Programs are funded by a check-off of 3¢ per bushel. Research and extension projects are conducted under a contract between the board and the Arkansas Agricultural Experiment Station (these funds do not replace federal and state allocations). Promotion and market-development programs are carried out by the Rice Council, which is funded jointly by Arkansas, California, Louisiana, Mississippi, Missouri, and Texas. In fiscal year 1985-86, the board funded research projects valued at $500,000 for the Arkansas Agricultural Experiment Station. The administrative and executive functions of the board are performed by the Arkansas Farm Bureau Federation.

**Arkansas Beef Council.** The beef council was established by Act 160 of 1983 and approved by producers in a referendum. The council has seven members, who are appointed by the governor. Six of these members must be beef producers and one must be in marketing and processing. The council promotes the growth and development of the beef industry in Arkansas through research, market development and promotion, and advertising.

Programs were originally funded by a check-off of 25¢ per head. In October 1986, a $1.00 per head check-off was initiated as a result of the Farm Bill of 1985, which created the national program. A national referendum is scheduled for early 1988. Revenues are collected by the state finance and revenue department. As provided by the law, 50¢ is sent to the National Beef Board to fund research and promotional programs. The council allocates the other 50¢ to the National Livestock and Meat Board (30¢) and the Arkansas Agricultural Experiment Station for research and for promoting beef in the state (20¢). The council is administered by the Arkansas Farm Bureau Federation.

**National Pork Board.** The Farm Bill of 1985 established the national pork program to enhance production and marketing opportunities for pork producers. The program is funded by a check-off of 25¢ per $100 value of animals sold. Collections began in November 1986. The National Pork Board, which is composed of members elected by delegates of 45 participating states, administers the program under a contract. The board's activities include promotion, research, and consumer education. It allocates funds to the states according to a formula. The board coordinates with producers' associations in each state and with the National Pork Producers' Association. A national referendum for the program is scheduled for early 1989.

## Soil and Water Conservation Commission

Act 197 of 1937 allowed the creation of conservation districts. Act 14 of 1963 created the Soil and Water Conservation Commission, by transferring to it the duties of the Water Conservation Commission, the Water Compact Commission, and the soil-conservation and flood-control duties of the Geological and Conservation Commission. Act 217 of 1969 established comprehensive water and related land-resource management and the Water Development Fund. Act 629 of 1969 authorized the state to make political subdivisions and the commission to enact and enforce measures to prevent and alleviate flood hazards. Act 38 of 1971 made the commission an operating division of the Department of Commerce. Act 274 of 1975 created the Water, Sewer, and Solid Waste Revolving Fund. Act 691 of 1983 eliminated the Department of Commerce and made the commission again an independent agency of the state government.

The commission has 9 members, 2 representing each congressional district and 1 at large. Members are appointed by the governor with the consent of the senate to staggered, 7-year terms. The director of the commission is appointed by the governor. The commission formulates policies and makes funding and regulatory decisions on soil conservation, water rights, dam safety, and water-resource planning and development. It has a full-time staff of 25 allocated to two sections: land resources and water resources.

Arkansas has 76 soil conservation districts. Each district has 5 directors: 2 appointed by the commission and 3 elected under supervision of the commission. The districts conserve water resources and are political subdivisions of the state government. The commission helps the 76 conservation districts control and prevent soil erosion, prevent floodwater and sediment dangers, preserve natural resources, manage water disposal, implement flood control, and provide dam safety. The districts also receive technical assistance from the Soil Conservation Service of USDA under a memorandum of understanding.

The National Flood Insurance Act of 1973 gave local governments and the commission authority to enact and enforce flood-prevention measures. The commission was designated by the U.S. Department of Housing and Urban Development (HUD) to coordinate the program. The commission is also responsible for preparing and implementing the state water plan. The first plan was prepared in 1976 and has been updated periodically thereafter. The Arkansas Water Resources Management Information System is the most important product of the state water plan. The database-management program is based at the University of Arkansas at Fayetteville.

The Water Development Fund provides financial resources to political subdivisions, commissions, and agencies to develop water projects such as municipal, agricultural, industrial, and recreational projects. The fund is monitored by the commission, which also makes recommendations, conducts public hearings, and awards contracts.

The Water, Sewer, and Solid Waste Revolving Fund provides financial resources to political subdivisions for the construction of water, sewer, and solid-waste-management systems and establishes eligibility requirements to create revolving funds for management systems of local governments. Matching funds come from the beneficiaries. The Water Resources Development General Obligation Bond Program provides resources for local project construction. The Tax Credits for Water Resource Conservation and Development Program allows Arkansas tax credits for certain types of water-improvement or control-structure construction.

Table 3 summarizes the Soil and Water Conservation Commission's expenditures for fiscal years 1969-70 to 1986-87. A bond issue for water development (not shown in table 3) currently amounts to $100 million, of which about $15 million is for the biennium 1987-89.

## FEDERAL-STATE COOPERATIVE PROGRAMS

Two state programs provide informational and educational services to Arkansas agriculture. Both are conducted under federal-state cooperative agreements: the Arkansas Cooperative Extension Service and the Arkansas Agricultural Statistics Service. In addition, agencies of USDA perform facilitator functions for the Arkansas agricultural sector, some of which enter into cooperative agreements with state agencies, among them Veterinary Services, the Agricultural Stabilization and Conservation Service, the Soil Conservation Service, the Agricultural Marketing Service, and the Farmers Home Administration.

## Arkansas Cooperative Extension Service

The Cooperative Extension Service was established by the Smith-Lever Act of 1914 as the educational arm of USDA. The service works closely with other USDA agencies such as the Soil Conservation Service and the Agriculture Stabilization and Conservation Service. It operates a federal-state- county program under the administrative responsibility of the Division of Agriculture of the University of Arkansas.

Headquarters for the Arkansas Cooperative Extension Service are in Little Rock. Staff are also stationed in each of the research-and-extension centers at Monticello, Hope, Stuttgart, Keiser, and Fayetteville; at a center managed under a cooperative agreement between the University of Arkansas and Arkansas State University at Jonesboro; and at the aquaculture center at the University of Arkansas at Pine Bluff. The service also has agents located in each of Arkansas's 75 counties.

Table 3. Budget and expenditures, Arkansas Soil and Water Conservation Commission, fiscal years 1969-70 to 1986-87.

| | Expenditures (in dollars) | | |
|---|---|---|---|
| Fiscal year | General revenue | Federal revenue | Other[a] |
| 1969-70 | 481,019 | 40,407 | 0 |
| 1970-71 | 476,893 | 42,764 | 0 |
| 1971-72 | 498,767 | 56,249 | 0 |
| 1972-73 | 456,395 | 81,016 | 0 |
| 1973-74 | 701,977 | 51,336 | 0 |
| 1974-75 | 717,630 | 42,576 | 13,750 |
| 1975-76 | 632,674 | 69,443 | 0 |
| 1976-77 | 735,061 | 78,882 | 10,725 |
| 1977-78 | 782,292 | 129,589 | 0 |
| 1978-79 | 787,302 | 671,417 | 0 |
| 1979-80 | 1,182,191 | 492,160 | 0 |
| 1980-81 | 1,757,084 | 431,999 | 0 |
| 1981-82 | 2,197,986 | 196,850 | 756,667 |
| 1982-83 | 1,461,349 | 92,940 | 134,107 |
| 1983-84 | 1,322,940 | 145,074 | 886,293 |
| 1984-85 | 1,302,948 | 276,732 | 508,970 |
| 1985-86 | 1,617,314 | 284,613 | 1,035,160 |
| 1986-87 | 1,752,763 | 299,217 | 525,925 |

Source: Arkansas Department of Finance and Administration, unpublished data.

[a] Water-development and water, sewer, and solid-waste project loans and grants from revolving funds using repayments from previous loans.

Budget funds are allocated under the formula established by the Smith-Lever Act. About 34% of the budget comes from the federal government, 60% from the state and an average of 6% from the counties. The share of the state's contribution has increased in the past 10 years, but compliance with federal regulations has not decreased. More than 50% of the resources are dedicated to agriculture. Emphasis is placed on cultural practices, variety selection, pest management, fertilization, production economics, and marketing. Livestock programs include management practices, breeding and selection, nutrition, and forage use. The service also provides advice on farm-structure construction and farm safety; recommendations for testing soil, forage, and domestic and irrigation water; and information about aquaculture and special diagnostic services for plant and animal production. Other special programs include estate planning, wildlife management, natural resource conservation, forestry, and environmental quality technical assistance.

## Arkansas Agricultural Statistics Service

The Arkansas Agricultural Statistics Service, known until 1986 as the Arkansas Crop and Livestock Reporting Service, was established under a cooperative agreement between the National Agricultural Statistics Service (formerly Statistical Reporting Service) of USDA and the Department of Agricultural Economics and Rural Sociology of the University of Arkansas. About 95% of the $1 million annual budget comes from federal funds; the university provides the remaining 5%. Occasionally special surveys are financed from university funds or from interested clients.

The service collects and processes information to develop periodic estimates on production and related variables of traditional crops (wheat, rice, soybeans, grain sorghum, cotton, and corn), livestock (beef, dairy, swine, and poultry), fruits, and vegetables. Remote sensing, multiple-frame sampling, and objective yield and field counts are the most common techniques applied. The service prepares and distributes periodic bulletins on topics such as acreage harvested and planted, production, stocks, prices, livestock slaughter and inventories, and weather conditions. The service publishes an annual statistical summary of the state, *Arkansas Agricultural Statistics.*

# KEY ISSUES FOR ARKANSAS'S AGRICULTURAL PUBLIC SECTOR

This section discussed key issues for the agricultural public sector in Arkansas and compares the role of the public sector in agriculture to the functions performed by state governments in 42 of the states considered in the first paper of this proceedings and the characteristics and activities of the public sector interaction with agriculture in Arkansas. It outlines alternatives for discussion and implications for agriculture and economic development.

## Arkansas Compared to Other States

The first paper of this proceedings argued that state-by-state differences in public funding for agricultural programs in all 43 states sampled are more likely the result of the nature of farm production and the overall amount of state general expenditures than of the size of the agricultural sector relative to the overall economy of the state. Arkansas is within the mainstream of those 43 states, with gross farm sales above the median and expenditures by state agricultural agencies below the median by $4 million. Furthermore, Arkansas devotes .32% of its general expenditures to the agricultural sector, thereby falling within the majority (26 of 43) of the states sampled.

The discussion also indicated a high degree of uniformity in the functions and organizations of centralized state agriculture agencies. The most common functions are regulation, market promotion and development, soil and water conservation, and functions that facilitate the operation of the sector. However, the scope of executive functions and operations varies significantly from state to state. While chief agricultural officials and state boards and commissions of agriculture provide leadership and advocacy for the agricultural sector and actively intervene in setting priorities and policies in many states, similar officials perform simply administrative functions, and similar boards are perfunctory oversight committees in others. The frequency of board and commission meetings vary; appointment of members generally is made by the governor with provisions to meet representation requirements and jurisdictions; and boards are primarily forums for discussing problems relating to agriculture in the states. In most cases, the legislative mandate creating boards and commissions gives them administrative authority over the department of agriculture and a role in overseeing its functioning.

Boards and commissions of agriculture serve many functions and represent different levels of activism. For most of these boards and commissions, the chief executive is a cabinet-level officer of the state. This position allows direct input into the governor's policy- and decision-making process and action on matters such as directing personnel and preparing and implementing budgets. In many states a commissioner of agriculture is elected, giving the voters direct influence in state government decisions on agriculture. Whether these boards and commissions of agriculture are highly influential or simply act as ombudsmen, they have the advantage of being able to coordinate the many different activities and functions of state agricultural agencies.

In Arkansas, several state agencies offer services to support the agricultural sector, including regulation, market promotion, and conservation. However, Arkansas diverges from the national trend in the scope of executive functions, given the absence of a board, commission, department, or other central agency to perform such functions and coordinate the actions of the public agencies that serve agriculture in the state. Arkansas agricultural agencies have well-defined objectives, and many of these agencies take the form of a board (State Plant Board) or a commission (Livestock and Poultry Commission). Evidence shows that these agencies develop independent programs of varying degrees of importance, operate efficiently, and prevent serious overlap of functions. Yet having many public agencies with institutional mandates that limit the scope of their contributions to the agricultural sector without having an executive coordinating mechanism may make statewide problem solving and planning impossible.

The absence of a coordinating mechanism translates into a lack of initiative in the executive branch of state government to formulate agricultural policies and to define the role of agriculture as a component of the state's overall economic development. As a result, state agencies simply carry out policies and programs formulated by the federal government without looking at state planning and without considering the consequences of incomplete planning on the performance of the agricultural sector.

An immediate result is that many functions performed by central agricultural agencies to benefit the agricultural sector do not exist in the Arkansas public sector, simply because they do not fit into the mandates of existing agencies. An example is market promotion. While commercial agriculture receives attention from AIDC and from the boards and councils that administer the check-off programs (some of which are national programs), there is no public coordinating body for the farmers markets across the state as there are in states such as Georgia and Texas. Much of the current development of farmers markets in Arkansas comes from private efforts (among them the Home Grown Market Project sponsored by the Winthrop Rockefeller Foundation) and from assistance provided by the Arkansas Cooperative Extension Service. Information is scarce about activities, prices, location of products, availability, and other subjects related to these markets. This informational function is an example of a public good that the private sector is unable or unwilling to provide.

The implications of the lack of coordination of state agricultural agencies in Arkansas are more far-reaching for the economy of the state than they may appear. First, as discussed in the previous paper, many states are seeking alternate producing and marketing opportunities for farmers. Some states with lower resource endowments and fewer geographical advantages than Arkansas are undertaking serious efforts in this area, and Arkansas producers may find their opportunities limited as competition from those states increases. Second, efforts are beginning in Arkansas in that same direction, but they are originating mainly in the private sector without full knowledge of production and market conditions and without a master plan. They can be successful only if fully coordinated at the state level.

Similar examples can be presented for developing services that report complete statistics for all crop and livestock products; participating in development of curricula in agricultural universities and colleges to meet the needs of an evolving agricultural sector; orienting and deploying research and extension services; comprehensively managing renewable resources; and promoting low-input crop practices, sustainable agriculture, agribusiness development, and economic rural development. These and other issues are gaining the attention of other state and national agricultural experts and policymakers.

## Alternative Courses of Action: Implications for Arkansas Agriculture and Economic Development

This paper illustrates a wide array of problems addressed by Arkansas agricultural agencies and the resource support they provide, which compares to the support provided by central agricultural agencies in other states. It remains to be determined whether a change in the structure of Arkansas's approach to problem solving and policy formulation in agriculture is in order. This paper is not intended to provide an answer to this delicate question, but merely to open a forum for discussion.

The following options are presented with the hope that the people of the state and private and public leaders will address them:

- Maintain the status quo.
- Increase the level of resource support for the agriculture development and marketing divisions of AIDC, including larger coordinating and policy-formulation roles and enhanced promotional efforts to cover all the state's agricultural products.

- Create a state board of agriculture with limited administrative authority over existing agencies that represents a wide body of agricultural groups, promotes the interests of the agricultural sector from production to marketing, and initiates planning and policy development.
- Create an office of commissioner or secretary of agriculture that is independent of existing agencies, is a point of coordination and input for agricultural interests to the governor, is public spokesman for the agricultural community, and has the authority of the governor's office to initiate planning and policy development.

The alternatives listed are not exhaustive—any combination or variation is possible—and their suggestion is not meant to imply that changes are necessary in the structure of the public sector that serves agriculture in Arkansas. These alternatives are given to promote objective discussion and to spark interest in matters that relate to the future of the agricultural sector and its role in the economic development of Arkansas.

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## PART 2

# SPECIAL STATE PROGRAMS IN AGRICULTURE

# INTRODUCTION

Sandra S. Batie

American agriculture is undergoing a rapid transition. The agricultural economy is increasingly sensitive to world events, to the fluctuations in the strength of the U.S. dollar, and to nonfarm policies such as deregulation. Recent changes have resulted in financial distress for farmers and rural communities. At the same time, public attitudes are changing about current agricultural policies and practices and future biotechnologies. Public concerns include the future of family farming, protection of the environment, improved human nutrition, and assurance of the safety of food products. These concerns have created tension about the need to adjust farming policies and systems to reflect society's values. Furthermore, the public is increasingly disenchanted with a federal farm program that cost taxpayers a record-breaking $22.4 billion in 1987 but concentrated benefits among only a few of the nation's 2.3 million farmers.

Because almost 90% of today's farmers receive more income from off-farm sources than from on-farm sources and because farmers now represent less than 15% of the rural population, federal farm programs with more evenly distributed benefits do not constitute a strong rural policy. Many rural economies, heavily dependent on natural resources and manufacturing industries, are currently experiencing hardships. Rural areas lag behind metropolitan areas in employment growth (3% versus 10% in 1979-1985) and lead metropolitan areas in unemployment rates (9% versus 7%) and poverty statistics (19.23% versus 12.7%). Clearly, states need rural policy as distinct from agricultural policy to improve the quality of rural life.

While public concerns intensify, the federal government's involvement in solving rural problems has diminished. While the federal farm programs remain well financed (but not well distributed), federal support is decreasing for economic and rural programs such as the Farmers' Home Administration, Tennessee Valley Authority, Appalachian Regional Commission, and Economic Development Administration. Federal assistance to state and local governments has also declined under the Reagan administration. In response to escalating rural problems and a decreased federal presence, states have developed their own initiatives —in many cases taking on the missions formerly considered the purview of the federal government.

While the role of any democratic government is to discover, shape, and reflect in governmental policies the values of its public, states are struggling to identify these values and develop programs in agriculture (where agriculture is defined to include all components of the rural economy). The states face a challenging assignment, but one of considerable importance to rural America. The following papers provide assistance to state officials in meeting that challenge.

The first paper, "The Changing Role of State Government in Rural Development," draws on the author's considerable experience with federal and state governments and identifies six state strategies for successful development:

- determining competitive advantages and targeting program resources accordingly
- supporting industries that can sustain a competitive advantage
- financing demonstration, innovation, and transition but not ongoing economic activity
- providing marketing and business-management support to small firms
- managing natural resources as an integral component of rural economic development
- supporting alternative agricultural systems that are closely linked to the local economy

The author cautions state administrators to fashion strategies that complement economic incentives and not to resist or ignore fundamental forces.

The second paper, "State Strategies for Promoting Agricultural Exports," reports the results of telephone interviews with state program directors and managers about state strategies for farm-product export expansion. The discussion of the various state programs is based on three main categories:

- helping the sellers
- reaching the buyers
- developing the market

The author concludes by examining three notably innovative state systems. The experiences of Oregon, Texas, and California suggest that states can develop significant export programs if the officials design such programs wisely.

The third paper in this section, "The Role of State Government Agencies in Farm Finance," identifies and thoughtfully evaluates several potential state farm-finance programs. The author cautions that a state must address two questions to design an effective program:

- What is the type of program to be implemented?
- What is the level at which the program should be funded?

The final paper, "State-level Agricultural Policy in Minnesota: Adjusting to Change in the 1980s," concerns the policies of a state that has innovative agricultural initiatives. The author considers the limits and possibilities of state agricultural policy while discussing Minnesota's interest buy-down program for financially distressed farmers. From the program, the author draws five conclusions:

- State financial resources are limited.
- Financial risks should be shifted away from state treasuries.
- Cooperative efforts by state departments and state universities have great potential.
- Problems result from efforts to make rural financial stress a partisan political issue.
- Dismantling temporary initiatives is difficult.

The four papers provide an excellent background for exploring the role of state government in agriculture and the rural economy. State officials recognize that they need to respond to economic forces and changing public attitudes. To organize themselves to evaluate, develop, implement, and enforce agricultural and rural strategies requires skill and vision. If the strategies are to be socially relevant, ecologically responsible, and scientifically defensible, alliances need to be created between state leaders and many knowledgeable groups. Winrock International has developed such alliances as part of its mission and, in this proceedings, has provided an excellent set of papers as the foundation for defining the role of state governments in agriculture.

# THE CHANGING ROLE OF STATE GOVERNMENT IN RURAL DEVELOPMENT

Stewart N. Smith

Rural economies in the eighties have shown much less vitality than those of nonrural areas, with employment growth since 1979 only 4% compared to 13% for the urban economy. The decline in population, a longstanding characteristic of rural America that was interrupted in the seventies, has returned in this decade. Three times as many rural communities lost population from 1983 to 1985 than during the entire previous decade.

Besides this general decline, many areas of rural America are experiencing a wrenching economic transition. In many instances, rural economies that depend on agriculture, energy, and certain types of manufacturing have been unable to curb the economic decline. Therefore, it is not surprising that the problems of rural economies attract attention from state governments.

Before discussing appropriate tactics that states might use to address these challenges, consider some observations about rural economies. Agriculture has had a unique relationship to rural development, and that relationship permeates the current policy setting. However, rural and urban economies share a similar mix of economic activities. For example, ratios of total employment—construction, transportation, trade, and government—are nearly identical in both urban and rural economies. Urban areas have more activity in finance, insurance, and similar services; rural areas are more dependent on manufacturing; but the differences are not overwhelming.

Given the cyclical nature of natural-resource industries, rural areas that depend on them face challenges that more diversified, urban economies do not. In addition to cyclical problems, areas that depend on farming face a long-term challenge because of the continuing decline in farm numbers. Since the thirties when the number of farms peaked at about 6.5 million, farm numbers have declined steadily (except for a few interruptions). Today, farms number a little more than 2 million. However, agricultural production has been maintained because farms have grown larger; larger farms have been absorbing smaller farms. But even this centralization has been harsh on rural communities. As farms grow larger they tend to bypass the local economy in purchasing goods and services.

The driving force behind farm centralization is technological change, and the current pattern will probably not be altered significantly. Although smaller farm units may be as efficient as larger units, technologies historically enable one manager to control more and more output. Further technological advances will encourage centralization as managers expand their outputs to increase their profits. Reversals of this trend would require either a tight supply-management program that freezes the number and size of farms or new technologies that make it more costly to control more production. Because neither of these changes is likely, more and more people will probably be leaving full-time farming. And because larger farms tend to bypass local economies, the remaining farm units will use fewer local goods and services even if they maintain or increase production.

Therefore, a successful state rural-development policy must consider both the cyclical nature of industries based on natural resources and the increasing centralization of farming. Acknowledging these factors and trends is especially important when states place the responsibility for rural development in departments of agriculture. To the extent that traditional agricultural forces have a negative impact on rural economies, policymakers must be especially sensitive to the needs of rural development as they face the demands of traditional agricultural interest groups. Rural interest groups should recognize that, like their urban counterparts, most of their activity and growth depends on nonfarm economic activity.

Several states have recently adopted new approaches to the old problem of rural decline by focusing on the changes and transitions in rural areas. They are attempting to use the changing economic forces to promote the economy rather than trying to protect their economy from them. Although it is too soon to evaluate these approaches comprehensively, it is possible to form some judgments of their likely impact by considering them in terms of economic theory and principles.

## INAPPROPRIATE POLICIES

Although most new efforts have no record as yet, certain tactics can be discouraged with confidence:

- duplicating or replacing federal programs
- implementing programs that countermand market forces
- relying on tax incentives or subsidies to draw businesses

## Duplicating or Replacing Federal Programs

States would be unwise to duplicate or replace federal programs for one reason: many of the programs that have a major impact in rural areas are too costly. For example, maintaining farm income through target prices and other direct government payments can be prohibitive for those states with substantial agriculture production and little population. Direct government payments to farmers in 1984 and 1985 totaled about $1.6 billion in Texas, $1.4 billion in Iowa, and about $1 billion each in Illinois and Minnesota. Even payments in more-urban, northeastern states were costly, with New York and Pennsylvania receiving over $100 million each. As a rural-development strategy, income transfers similar to those used by the federal government are not an efficient way for state governments to support rural incomes in a period of scarce resources.

Moreover, states are prohibited by the interstate-commerce clause of the constitution from protecting their producers from imports from other states or countries. The federal government has no similar restrictions at the national border. Certain market-intervention programs require that the assisted industry be protected from economic forces. The federal government can provide that protection; states cannot. The federal milk program is an example. The federal government can bolster the income of dairy farmers and protect the margins of dairy processors with a program that supports the price of milk. The program can succeed because the federal government can restrict the supply of milk allowed into the country. States constitutionally cannot restrict the supply of milk from other states and, thus, can only provide income assistance through milk-price supports that make the product competitive with milk from other states. Consequently, the federal government still provides price supports for the dairy industry; only five states continue to do so at the state level.

## Implementing Programs that Countermand Market Forces

A second policy misdirection is to implement programs that countermand market forces. With the inability to protect markets against competitors, states will find their budgets unable to protect noncompetitive firms against market forces. Subsidizing an industry that is no longer competitive is a costly way to maintain employment and will probably fail even if it enjoyed considerable political support at one time.

A corollary of this observation is that social needs are better met by direct income transfer than by market interventions. If states wish to supplement rural income, they will find it less costly and generally more supportable to do so directly than through price supports or a permanent subsidy of inputs.

### Relying on Tax Incentives or Subsidies to Draw Businesses

Evidence indicates that smokestack-chasing, even of nonsmokestack industries, through the use of tax incentives or other subsidies is inefficient. Although this tactic has been the traditional linchpin of economic development efforts for many states, the majority of analysts conclude it is an unwise expenditure of resources. For example, in many site-location decisions, firms were not aware of tax incentives available to them. And in most surveys of corporate personnel who make site-location decisions, tax and other public subsidies are not primary deciding factors. Most firms locate where they find a fundamental and long-term advantage to do so, and often that advantage is not purely economic.

## APPROPRIATE POLICIES

States have a role to play in market interventions; they only need to realize their limitations. Markets often are not efficacious, especially in allocating resources to meet long-range and community objectives; however, states can improve the working of the marketplace by internalizing external costs and benefits and by providing participants with knowledge in areas such as evaluating risks and determining values of future resources.

For example, state governments are in a better position to consider the long-term return to forest management or the long-term cost of soil depletion than the private sector, where value is placed on more immediate returns. Financial public support to attain proper forest and soil management to get optimal long-term returns ultimately improves the workings of the marketplace. Similarly, state governments can better evaluate the benefits of a new technology to the regional economy than can a private bank, which must consider the risk to its stockholders of an individual adopter's failure. The bank has no responsibility to consider the regional benefit of a new technology; it correctly puts its emphasis on whether the borrower/adopter will succeed.

The six policies discussed in this paper are directed only at economic activity, not at the more comprehensive programs of rural development that may improve the lives of rural residents directly. Access to education, health services, housing, libraries, and recreation are all important components of state responsibilities in rural development, but they are not discussed here.

Although this paper focuses on economic activity, economic policy invariably involves noneconomic objectives. The premise is that it is good policy to minimize strategies to achieve noneconomic objectives through intervention in the marketplace. Still, it is not always possible to avoid using market intervention to achieve social objectives. Whether states use market or nonmarket techniques, both should be undertaken explicitly so the rural-development strategy can be chosen and acted upon rationally and program costs can be assigned properly to the correct objective.

The six policies that states should consider to develop agricultural programs are

- determining competitive advantages
- supporting industries that can sustain a competitive advantage
- financing demonstration, innovation, and transition
- providing marketing and business-management support
- managing natural resources
- supporting alternative agricultural systems

## Determining Competitive Advantages

State governments have a unique responsibility and capability to determine the types of industries likely to have a competitive advantage in each state (see note 1). The states' interests here are different from either the federal government (which has no reason to promote one region over another) or private firms (which have an overriding interest in near-term and private returns). States should have an interest in determining what industries are likely to prosper over time, and state governments should be able to perform this function.

The competitive advantage may come from a superior natural resource basis, work force characteristics, climate, location relative to final markets, or other factors. Competitive advantages are not static, they shift through time, often due to forces outside the region. New technologies may be more advantageous in one area than another; shifts in consumer tastes may encourage increased production with accompanying lower costs in specific areas; and changes in relative prices of inputs due to a changing supply-and-demand situation can shift advantages between regions. Therefore, a sound development strategy requires that states be alert to these changes and help firms adjust to them.

Natural-resource-development programs in rural areas are targeted traditionally to producing and processing goods. More recently, pursuing service-type economic activities, based on natural resources and the rural environment is proving to be a good tactic. Tourism has long been promoted as a targeted enterprise in rural areas that have unique natural-resource attractions such as lakes, beaches, or mountains. Today, state strategies target tourism in other places. For example, an increasing number of New Englanders and West Coast residents are using their rural homes for bed-and-breakfast facilities, increasing the number of farm vacation suppliers.

Some states have developed day-trip attractions. For example, building on the presence of L. L. Bean, a nationally recognized retailer, Freeport, Maine, developed an impressive retail center substantially removed from the metropolitan areas of Portland. Reading, Pennsylvania, also successfully converted manufacturing facilities into retail outlets as part of a tourist strategy.

A newer version of this pursuit is the development of retirement facilities in rural areas. A recent USDA report indicates that such developments have had substantial economic impact in some areas (Kuehn, 1986). However, such facilities require a certain natural ambience— not all regions are equally attractive. Therefore, a strategy based upon retirement facilities needs to be evaluated honestly.

The keystone of a rural-development strategy based on competitive advantage is the analytical ability to evaluate the alternative areas of economic opportunity. The precise location of such capacity in state governments is not critical, but certain conditions are:

- The capacity needs to be centralized near enough to the center of government that results of the evaluation can be used by all executive agencies and adopted by the administration—and hopefully the legislature—as an integral part of a state's economic-development strategy.
- The evaluation must be incorporated into development programs so it does not get nullified project by project. Too often good policies are eroded by responses to political pressure on individual projects.
- The agency that has the analytical capacity must work directly with the agencies that deal with constituents in the field.
- If the analytical unit is part of executive planning or development agencies, it should involve the resource agencies in an evaluation process.

Achieving the proper balance between adequate centralization to be effectively encompassing and adequate dispersion to be effectively delivered is a delicate but important feat.

Although such a coordinated evaluation may sound simplistic and obvious, too often it is lacking and causes good analysis to be left out of program implementation. Depending on the current analytical and planning capacity, achieving this tactic may require only executive reorganization and coordination of resources; however, it may require new authority and budget provided by a specific statute. Indeed, states may establish such capacity by statute so it will more likely continue beyond an executive transition. Some states are already enacting legislation to coordinate and strengthen rural-development activities. For example, Georgia adopted legislation in 1987 directing the Department of Community Affairs to establish a strategic statewide rural-development plan that can, among other things, identify industries for which rural areas in Georgia have a comparative advantage.

Another example is the Agricultural Economic Development Policy Act enacted by the Florida legislature to place the rural-development-policy responsibility in the Department of Agriculture and Consumer Services. Unlike the Georgia statute, the Florida legislation defines agricultural development as the key to rural economic vitality. Although it does not specifically refer to competitive or comparative advantage, it does target development of "innovative, constructive" agricultural development programs that have an immediate, short-term effect in depressed rural areas of the state. A second component of the act provides for a 2-year program to identify rural economic strategies (again agriculturally oriented) that address long-term objectives.

Because both of these statutes were enacted in 1987, it is too early to compare results. However, the Georgia statute—with a greater emphasis on comparative advantage and less initial emphasis on agriculture—appears to be more effective in supporting transition for the longer term.

## Supporting Industries that can Sustain a Competitive Advantage

Not all competitive advantages come from exogenous forces. Changes that are controllable within the economy also can shift advantages. Many of these factors can be influenced by state governments and should be considered in a rural economic strategy.

The strength of many rural economies depends on natural resources that provide the inputs for manufacturing and processing firms. Such firms locate in rural areas to minimize the costs of collecting and transporting raw products to their plants; however, the disadvantages of such locations are higher transportation costs to get the finished product to market and more distance from areas of high population and economic activity. These latter factors are sometimes referred to as *agglomeration economies*. State government programs can expand the advantages of raw-product supply and diminish the disadvantages associated with the lack of agglomeration economies.

Developing programs that encourage firms to locate in rural areas requires state governments to recognize that plants generally locate either at the source of a raw product or in the marketplace, depending on the relative costs of transporting the raw product and the finished product. Although some location decisions are based on product or service distribution, most heavy industries—including those involved in forest products, pulp and paper manufacturing, and food processing—still determine location based on transportation costs.

States can encourage plant locations in three ways. First, they can promote the production of raw products to assure a consistent supply of quality product at competitive prices. States can develop a number of programs designed to assist producers of raw product. Technology-transfer programs and targeted finance programs in some states help keep producers competitive. For example, Maine shares the costs of selected agricultural technologies with farmers through a technology-transfer program. Similar, though more specifically targeted, is a revolving loan fund for certain potato-storage technologies that provide an improved product for potato processors in the region.

The principle guideline for states is that they should support the ubiquitous raw-product producers rather than the unique processor. Adherence to this guideline reduces the state's risk because the failure of one farm in 500 is rather inconsequential (especially when there are buyers for the failed farm), but the failure of a single processor who purchases from all 500 farms has serious economic and political consequences. Supporting large sugar refiners in Maine and New York instead of the farmers who supplied them was one cause of the disastrous economic development effort in those states some time ago (see note 2). Supporting the dispersed producers of raw product rather than the manufacturer overcomes that risk.

A second method of encouraging plant location is to create localization economies for a manufacturing firm. Agglomeration economies can be classified as 1) large-scale economies, 2) urbanization economies, and 3) localization economies. Large-scale economies are savings on inputs that are possible when one firm is large enough to produce its inputs itself or purchase them in large volumes at reduced cost. Urbanization economies are savings that are possible when there is a large amount of economic activity in one place. Large-scale economies are achieved by the firm itself, and urbanization economies do not exist in most rural areas.

Localization economies are savings that are possible when several similar firms locate in one area. Such economies can be created or enhanced by state development policy. For example, a localization economy could result if several food-processing plants were located close together and created a market demand for inputs that assured the success of nearby firms that provided services to the plants (such as short-line manufacturers that built specialized equipment).

The third kind of state support that encourages plant location is minimizing transportation costs from producers to plant and from the rural area to the market area. Such support means the transportation system must be developed rationally, treating potentially competitive firms fairly, and must be consistent with a sound rural economic strategy. The system should not be simply a response to political pressures. In theory, the tactic is obvious; in reality, it is not observed. Few states have specific transportation-policy development procedures that assure proactive rural-economic-development support from the transportation infrastructures.

As discussed earlier, one of the primary barriers to rural economic development is distance. Rural areas are costly to serve because the distance from markets and services results in high transportation costs. However, telecommunications can virtually eliminate the costs associated with moving data, information, and communication over that distance; therefore, certain kinds of information-transaction industries can compete with little regard to site location. For example, major city banks in the northeast are locating information-transaction functions in the midwest. Another example is the development of Freeport, Maine, around L. L. Bean: Because the firm relies heavily upon mail-order sales, it requires a certain level of telecommunication service and costs. Once located in a rural area that provided the necessary services, the existence of that retailer attracted many other retail firms. As shown in these examples, states may benefit from providing certain telecommunication infrastructure to enhance the competitiveness of rural locations.

## Financing Demonstration, Innovation, and Transition

Development finance in the form of loans and loan guarantees is often the bulwark of state economic development programs. If the government is to promote more efficient markets but not countermand them, the state has a legitimate but limited role in development finance.

As a rule, firms that cannot get financing for traditional and normal activity probably should not be financed by the state. The state is not in any better position than the private credit community to evaluate risk in traditional businesses, nor does the state have any particular reason to compete with the private sector or offer credit for typical ongoing operation. Indefinite public credit is generally not politically sustainable either, unless it serves some clear public purpose—a case that is difficult to make in support of public financing of most private firms.

However, the state does have a role in financing new technologies and products that the private credit system finds too risky: only the state is likely to supply the capital that is needed before a product is proven in the marketplace. This *gap financing* (the financing required to take a process or product from the demonstration stage into production) has been eschewed historically by private credit institutions, especially for smaller firms in mature industries. The federal government has met part of the need for gap financing in agriculture by funding demonstration research conducted by land-grant universities; but even the federal government has not financed the early adoption of the technologies developed by that research.

Gap financing in the natural-resource sector is an excellent niche for state rural-development programs. Recently adopted state programs in Connecticut provide this financing in exchange for equity in the product. That is, the state relies on royalties from the product to provide its return rather than repayment of a loan. Michigan uses a similar technique. While Connecticut focuses on technological industries, Michigan targets various sectors, including food processing and other mature industries. Neither state specifically targets rural areas, although a combination of rural- and mature-industry targeting could prove to be an effective development tool.

In addition to gap financing, states can target finance programs to specific technologies that will improve the competitiveness of mature industries. Such programs build sufficient demand to attract necessary private engineers, consultants, and suppliers, thereby attracting the support system necessary to encourage the continued adoption of a desired technology. For example, the Potato Market Improvement Fund in Maine created a critical level of demand for technologies and equipment to build or retrofit certain potato-storage and -packing facilities. A $5 million revolving loan program funded by a general obligation bond issue attracted enough attention to encourage equipment manufacturers and a university's agricultural engineering department to direct resources at providing the requisite personnel, technology, and equipment. After the state program demonstrated that the higher capital costs of the new technology standards could be recovered in a short time, other lenders (both private and public) adopted similar technology standards.

However, a single development-finance program cannot always target all desirable objectives. The Potato Market Improvement Fund, for instance, was designed to improve the technologies used in storing potatoes in Maine. It did not attempt to target the program to lower-income farmers or those particularly in need. Instead, it funded any individual or firm that would retrofit or build to the new standards and would meet certain industry objectives and credit standards. Enacting a financing program with this type of targeting proved politically challenging because the common perception was that public money should primarily support those in need who could not get credit elsewhere.

Another example of targeting development-finance programs is the *Invest in Iowa* program that provides low-interest loans to farmers who want to diversify their farm operations away from the traditional crops of corn, soybeans, popcorn, rye, oats, alfalfa, and wheat. Vermont has a similar direct-loan program that finances new crops, products, and technologies. Similar programs could target value-added processes that let the producer sell a product with a higher value to a shifting consumer market.

As noted in the discussion of gap financing, targeted strategies should not be limited to loans and loan guarantees. States may prefer to provide equity capital to rural businesses when *patient capital* is needed or when heavy debt service nullifies an otherwise promising venture. The development-finance strategy should also include grants. Although used on a limited basis by most states, modest grants, sometimes accompanied by other techniques, can be an effective tool for encouraging innovation and transition. For example, the New York Agricultural Research and Development Program has awarded grants to projects that resulted in successful new-product development, supporting both university demonstration and private efforts in its first 2 years (see note 3). And technology-transfer programs can be targeted specifically. For example, the program in Maine focuses on sharing the cost of technology adoption with farmers and farm-service providers.

Whether a new development-finance authority is created or rural-development targeting is placed in an existing authority, certain criteria should be met. The authority should have broad powers to provide direct loans, loan guarantees, equity capital, grants, and technical assistance. The authority should also have the power to raise funds by selling bonds and assessing fees for service. Too often, finance-development authorities are developed with a focus on certain means of raising capital rather than on program needs. The program objectives should be targeted, then broad and flexible authority should be provided to meet those objectives.

Finally, the development-finance agency needs protection from political pressures. Decisions must be made according to an objective standard that is carefully developed, explicitly stated, and part of a comprehensive strategy. One successful model is an organization that consists of a citizen board that establishes policy and a professional staff that makes decisions on projects. Because of their own interests, citizen board members may view specific proposals with a narrow focus; however, they can contribute effectively to policy and program development, in which various views can be considered in an open, structured process. A professional staff, given reasonable protection from political pressures, usually can make more objective decisions on projects.

## Providing Marketing and Business-management Support

The rural economy relies heavily upon small businesses that are often established by local entrepreneurs. Many of these small, rural businesses are weak in marketing and management skills. Perhaps because of their initial production orientation, too many rural business people view marketing as promoting and selling products already produced instead of determining what products and services consumers want and producing for that market. In many cases small businesses neither have nor believe they can afford adequate marketing capability.

States can help small businesses form groups to purchase market services cooperatively or can provide such service directly from the public sector (possibly on a fee-for-service basis). A state's primary marketing function should be gathering, evaluating, and disseminating information. A state can track market trends, determine shifts in consumer preferences, collect and report current market information, and provide information on pricing and production potential of competitive areas. Such an information function might be added to existing marketing programs of quality-assurance and promotion. An example of a state's information-based market-assistance service is Virginia's computerized livestock auction. Farmers can use computer links to buy and sell livestock without having to move the animals to an auction site.

The need for management training and information is also important. Successful management of the firm's resources is essential to its competitive position. Management is a science; it can be taught and learned. Public and private universities and colleges, including the cooperative extension services, vocational-technical systems, adult-education networks, community colleges, federal agencies, private creditors, and private consultants all provide business-management education and training.

To strengthen rural businesses, the state has a dual responsibility for management training and information: 1) to identify and coordinate existing programs and 2) to create programs to fill any deficiencies. Some states have compiled directories of management-training programs, making the information available to businesses and regional development agencies. States might want to make business-management skills a prerequisite for certain development-program benefits; that is, they would provide no financial support to firms that did not have sound, demonstrated management capability and no production support (financial or otherwise) to natural-resource firms that did not have adequate marketing plans. This is the policy followed by the Finance Authority of Maine in providing credit under its Natural Resource Finance and Marketing Division.

Developing and supporting *incubator facilities* is a relatively new technique. Incubators are physical facilities in which entrepreneurs can start their businesses. The facility houses much of the technical support required by the start-up firm, such as bookkeeping, accounting, information management, and marketing services. For example, the Illinois Small Business Incubator program, enacted in 1985, shares the costs of operating incubators for the first 3 years. Although that program does not target rural areas, such a program could.

## Managing Natural Resources

Little evidence suggests that states adequately provide natural-resource management as part of their rural-economic-development strategies, although natural-resource management is a key to achieving and maintaining long-term competitive advantages in many resource industries. States need to develop explicit resource-management programs as part of their economic strategies to assure that natural resources are managed to provide an optimal return over the long term.

The private sector's distinct bias is to underestimate the long-term returns to much resource management. Returns to timber management are far in the future, with much uncertainty for the firm in the interim. Fisheries are a common property—what one fisherman conserves is only made available to a competitor fisherman. Unlike the private sector, states can provide incentives and regulations for proper management of fisheries, forests, soil, and water to improve the long-term efficiency of the marketplace. States should consider resource-management needs as part of rural economic activity and make appropriation and spending decisions in that context. Investments should be made in resource-management programs that will improve the long-term costs of raw product and the future competitive position of a region's industries.

For such a strategy to be effective, resource agencies, in cooperation with planning and development agencies, should develop programs to ensure that there are sufficient low-cost natural resources to maintain certain levels of future economic activity. Although this planning process is ongoing, it puts the state's responsibility for resource management in perspective. Such processes lead to resource-management programs that are consistent with statewide economic policy.

If a state adopts a long-term resource-management strategy, it could develop programs to fund and publicize projects that demonstrate innovative soil-conservation measures, cooperate with federal conservation agencies to target federal resources consistent with state policy, or invigorate local soil and water conservation districts with some funding on a competitive or matching basis accompanied by increased responsibilities. Many states have pieces of a natural resource strategy incorporated into various programs. For example, Minnesota has its own conservation-reserve program, which operates in addition to the federal program and which targets eligible land to meet Minnesota's conservation objectives. However, there is no obvious example of a comprehensive approach that treats resource management as part of a rural-development strategy.

Fisheries, because they are a common property, require a different set of programs, such as increased state regulation of certain species and regulation of certain fishing areas for aquaculture development. Implementing such regulations is difficult politically, requiring a clearly articulated long-run strategy of economic development for the fisheries.

Forest-management practices need cost-effective state support, including incentives for private-service foresters and landowners to practice long-term management, support for private forest-management groups, assistance for small-woodlot owners to organize and purchase services cooperatively, information and training, and direct and indirect financial programs. All of these techniques are used by various states to promote sound forest management; however, like soil and fisheries resources, they could be made more effective by incorporating them into a long-term development strategy.

## Supporting Alternative Agricultural Systems

States should exploit the movement away from full-time and traditional farming for the benefit of rural economies. Many valuable economic contributors have come from the ranks of farmers in the past, and more will do so in the future. Many farmers prefer to remain in a rural area, on an existing farm, and continue farming part time.

As discussed earlier, traditional agricultural development has resulted in larger, more specialized farms that purchase increasing amounts of inputs from outside their communities. Most authorities agree that the traditional agricultural system will continue to have a deleterious effect on local communities that depend heavily on local farms.

While the major trend is toward fewer and larger farms, there is also a trend toward more alternative farms that use a combination of value-added marketing, low-input production, and off-farm income to remain economically viable. Evidence shows that alternative farms, also known as *value-mode farms*, are often viable and more supportive of the local economies.

Value-mode farmers need to increase the value and price of their output, displace purchased inputs with their own management and labor, acquire income from sources other than farm production, or any combination of the three. Whether selling their products directly to local markets, using local sources of inputs, or working in farm-related or local off-farm jobs, these farmers participate more in their local communities than do production-mode farmers. A wise rural-development policy would support value-mode farming. Such a policy would probably require a shift in the priorities of many state agriculture departments that provide most of their resources to more traditional, full-time farmers. Because the production and marketing needs of value-mode farmers are quite different, they receive little benefit from traditional programs.

To support value-mode farmers, states need programs in direct marketing and developing appropriately scaled technologies—assistance that may not be helpful to the larger, production-mode farmers, who rely on their farm production (rather than reduction of inputs or more direct marketing) for income. These marketing and development needs can be met with technical assistance and information delivered with the recognition that value-mode farmers may have off-farm jobs and do not have the flexible schedules of full-time farmers. Small-grant programs to promote adoption of technology and promotion of local markets are also helpful. A necessary companion program is providing off-farm employment opportunities. Farmers leaving full-time farming can add valuable skills to the region's labor pool. Part-time-farmer programs need to be coordinated with the more general economic-development programs. The payoff of such support can be substantial.

Most states have pieces of programs to support value-mode agriculture but no comprehensive program. Most states have direct-marketing programs for farmers; several have integrated pest-management programs to reduce chemical-input use; and a few are adopting retraining programs to help farmers move from full-time to part-time farming. However, a casual search failed to turn up a single comprehensive program to support value-mode agriculture as a component of rural development.

In addition to the occupational transition from full-time, traditional agriculture to alternative farming, a geographical transitional is occuring as others move out of rural areas where adequate economic activity cannot be sustained. States should assist those who are caught in these transitions.

In areas where farming cannot retain a competitive advantage, state governments must make it acceptable to leave farming and must provide programs to train farmers for other vocations. Because of tradition and a sense of responsibility to preceding generations, leaving the farm is a traumatic experience for many farmers. The trauma is not eased by state policies (with all their ethical connotations) that encourage entering farming but offer no support for those leaving farming. If one believes in the marketplace, many other occupations have a higher value; that is, they provide monetary rewards higher than those for farming. Education, training, and direct financial support could balance the scales for farmers choosing to leave. And because occupational migration from full-time farming is inevitable, states should view it as a positive rather than negative occurrence. For farmers moving out of the region and out of their vocation, relocation grants might be an effective and proper mechanism to reduce the friction of such moves.

Recognizing that fewer full-time farmers will be needed in the future, states must incorporate this trend into their education policy. Young people should not get trapped into a situation where full-time farming is their only reasonable option—either from a psychological or a skills viewpoint. Too often young people value farming so highly that they are not prepared for alternative vocations. States have a responsibility, through the education system as well as rural economic development, to provide rural people with choices for full and rewarding lives.

Several states have recently adopted programs to assist farmers who are coming out of farming. Nebraska was one of the first to offer a comprehensive program of counseling and job training. However, too few states offer relocation grants as part of their transition programs. New state efforts should consider both components.

## TWO NOTES ON PROGRAM DEVELOPMENT

States can implement the tactics discussed earlier in a number of diverse programs; however, certain conditions make their implementation more likely to succeed. Two points are particularly important: the location of the programs within state government and the structure of program administration.

### The Location of Programs within State Government

Responsibility for a state's rural-development program must reside with the appropriate agency if the program is to function successfully. Several models now exist. In Florida rural development, as a component of agriculture, becomes agricultural development. In other states the most effective rural-development tools are in departments of commerce or community affairs, as in Illinois and Michigan. The primary planning agency for rural development in New York has been the Legislative Commission on Rural Resources, which recommended and saw created last year an Office of Rural Affairs in the executive branch. Because the office has limited staff, funding, and authority, it is premature to determine whether that structure is effective.

### The Structure of Program Administration

Experiences of most states strongly suggest that successful program development requires citizen participation. Because many of the programs support or cause change, are implemented in areas that do not have thriving economies to pull in participants, and operate with persuasion rather than regulation, citizen awareness and participation are important. On the other hand, several experiences suggest that citizen participation at the project level can often be counterproductive because most residents have personal interests that bias their decisions about local projects. Citizen involvement should be sought during program development, when ideas can be measured against an objective standard, instead of at implementation when local partiality to a project cannot easily be balanced against overall development objectives. A successful rural-development strategy integrates citizen participation with appropriate state capabilities and resources.

## COMPREHENSIVE RURAL DEVELOPMENT: NEW INITIATIVES

An inevitable conclusion to be drawn from reviewing state efforts in rural development is that no comprehensive model has yet been proven; however, state efforts are moving toward programs that are more supportive of change and transition.

### State Survey Results

In a survey by the Council of State Governments' Center for Agriculture and Rural Development (see note 4), 49 states indicated whether they offered any part of 22 rural-economic-development programs. The survey categories used by the council do not fit neatly into the six tactics described in this paper, but they can generally be categorized as consistent with (8 categories), inconsistent with (4 categories), or neutral to (10 categories) the approaches and guidelines suggested here. States indicated they offer 445 programs—about 41% of the potential if all states offered all programs. Of those consistent with the described tactics, 34% of the potential total are offered, compared to 61% for those inconsistent and 39% for those neutral.

The council's survey suggests that states may be adopting the newer tactics as part of their rural-development strategies, but the more traditional programs are much more prevalent. The survey also reveals regional differences. Midwest states offer a greater array of consistent programs, and southern states offer the fewest. Arkansas, according to this survey, has no programs consistent with the tactics but offers all of the programs considered inconsistent.

## Model Programs

Several state legislatures demonstrated considerable interest in rural development in 1987, and some models for comprehensive programs may be emerging. As noted earlier, both Georgia and Florida initiated planning processes that could lead to comprehensive programs in the future.

Montana advanced beyond the planning stage with its act to create a Montana agricultural development council. The council is directed to establish policies and priorities to enhance future development of Montana's agriculture. It has a seed-capital fund to invest in new products and processes that benefit Montana's agriculture generally. It also has special-revenue funds to assist the financing of incubators for agricultural businesses. Both Montana programs require careful targeting and demonstration of benefits for more than the recipients of the financial support. The council's third directive is to assist in marketing Montana's agricultural products. Although some of the support is similar to traditional promotion programs, most of the effort focuses on obtaining information about foreign-market opportunities and providing technical assistance to exporters. None of the major components of this statute are inconsistent with the transition and targeting tactics discussed earlier. Although they do not address resource management and transition from full-time farming, they do satisfy the first four tactics with the limitation that they relate only to agricultural development.

The most comprehensive rural-economic-development program to date was adopted by the most recent session of the Minnesota legislature. Of the 10 articles in its new statue, 9 directly address rural development and 7 demonstrate the concepts discussed in this paper.

Article 1 creates a rural-development board, assigns it the responsibility of coordinating rural-development programs, and places it in the Department of Energy and Economic Development. The board is required to "investigate and evaluate new methods to enhance rural development, particularly methods relating to economic diversification through private enterprises, including technologically innovative industries, value-added manufacturing, agriprocessing, information industries, and agricultural marketing." The board is required, after adequate study and public hearings, to "adopt a comprehensive state rural investment guide" to help state agencies establish and administer programs related to rural development. The board is also to provide technical assistance in rural development to other public agencies and the public.

The statute authorizes the rural-development board to administer two major finance-assistance programs. The largest, the challenge-grant program, makes grants to regional development organizations for establishing revolving loan programs in their areas for the purposes defined in the statute. The challenge-grant program is funded with $6 million from the Rural Rehabilitation Revolving Fund and targets those new and expanding businesses unlikely to undertake the proposed project without the loan. The legislation describes eligible projects as including "technologically innovative industries, value-added manufacturing, agriprocessing, information industries, and agricultural marketing." Retail businesses are not eligible, and local governments must approve each grant.

The second grant program (of up to $500,000) targets farm-related pilot projects that improve rural development; however, projects must primarily benefit low-income persons. The statute includes citizen participation in several ways:

- The board includes state officials, representatives of educational institutions, and appointed citizens.
- The challenge-grant program is guided by a regional advisory committee named by local development or governmental bodies; the committee administers the program at the local level.
- Much of the board's work is done through public hearings with citizen participation.

Article 1 uses several of the tactics suggested in this paper. It uses planning and analysis to target resources, although not specifically those that have or can have a competitive advantage—in fact another segment of the act actually targets firms that lack a competitive advantage. The farm-related pilot project promotes value-mode agriculture. And citizen participation is adequate. However, with local-development representatives administering the challenge grant program, it could prove to be excessive.

Article 2 creates the Greater Minnesota Corporation, a public corporation not subject to state personnel law, to provide loans, loan guarantees, and equity capital to businesses outside the metropolitan area. The corporation can create a Greater Minnesota Finance Authority as a funding mechanism for its activities. In addition to financing nonmetropolitan businesses, the corporation is authorized to construct and operate up to four regional research institutes near compatible education institutions. These institutes are to "provide applied research and development services to individuals, businesses, or organizations for the purposes of developing the region's economy through the utilization of the region's resources and the development of technology. Research and development services may include on-site research, product-development grants, testing of production techniques and product quality, marketing and business management assistance, and feasibility studies."

The corporation is to develop at least one such research institute, the Agricultural Utilization Research Institute, to expand the uses of the state's agricultural products. Along with general research responsibilities, the agricultural institute must evaluate market segments for agricultural products, identify associated development opportunities, and implement a utilization program for each segment. It also provides special grants to existing agricultural research facilities and creates its own advisory board. The corporation may also encompass the Natural Resources Research Institute now at the University of Minnesota.

A third responsibility of the corporation is a mandatory evaluation of the potential of a for-profit venture-capital corporation, capitalized with a state appropriation convertible to shares of stock owned by the residents of the state. The capital fund targets Minnesota firms that represent infrastructure for other state firms.

The directives of the General Minnesota Corporation are supported by a general fund appropriation of $6.5 million for the loan programs and $3.5 million from the Rural Rehabilitation Revolving Fund for the Agricultural Utilization Research Institute.

Article 2 adheres to most of the standards suggested for financing development. It focuses on innovation and demonstration, the administering authority has broad powers to raise and expend funds, and citizen participation is assured because the board is composed of citizens. Its protection from partisan political pressures is also adequate, if not excessive. Although the governor makes the initial appointments, the board makes its own appointments thereafter, with only senate confirmation, and hires its own staff. Also, an advisory board guides its research-institute program.

Other parts of the new Minnesota law are also consistent with the tactics outlined here. Articles 4 and 5 address government reorganization to support the statute. Article 4 creates a Community Development Division within the Department of Energy and Economic Development to administer all state community-development and -assistance programs, including the rural development board, and requires the division to provide technical assistance to the public and coordinate rural-development policies with other development efforts.

Article 7 addresses natural-resource management. It "provide(s) for the diversification of the state's mineral economy through long-term support of mineral exploration, evaluation, development, and commercialization." It creates a minerals coordinating committee and requires a 10-year plan for mineral diversification. Although the language discusses development, it implies a wiser use of minerals through long-term planning and appropriates $1 million for planning assistance. The article also appropriates $2 million for forestry- assistance programs, requiring work plans and project reports as well as supplementing forestry-management programs authorized previously.

Article 8 amends the Iron Range resources and rehabilitation program by adding an appropriation of $4 million to promote employment in technologically innovative businesses in this targeted geographical area of underemployment. It authorizes loans, guarantees, and interest buy-downs and provides new authority for providing venture capital or equity investments. It targets "diversification of the economy and promoting the development of minerals, alternative energy sources using indigenous fuels, forestry, small business, and tourism."

Article 9 creates the Minnesota Agricultural and Economic Development Board by replacing the Agricultural Resource Loan Guaranty Board, which had focused on financing only firms that use Minnesota agricultural products. The new board is authorized to finance other nonagricultural businesses, aquaculture firms, and commercial turkey production and processing. It also creates a small-business development-loan program to assist firms in need, but not necessarily those that are economically viable. It specifically targets hazardous-waste-processing facility loans and appropriates $400,000 to the development fund.

Finally, Article 10 amends the jobs-partnership program, which supports and coordinates job training by employers and educational institutes, by creating a new program, Grants to Dislocated Rural Workers. Grants are available to rural residents who are enrolled in farm-management or training programs, meet a financial need test, and are either unemployed in an area with substantial worker dislocation, a displaced homemaker, or a farmer in serious financial difficulty. An appropriation of $500,000 supports the program. This article meets the last tactic suggested in the paper: assist rural people to relocate vocationally and geographically when necessary.

The Minnesota statute, although not totally consistent in detail, addresses all the parameters of the tactics suggested earlier. It is likely a forerunner of comprehensive rural-economic-development programs that recognize that change and transition in the rural economy is inevitable and the state cannot afford to keep all existing economic activity in place with support programs. Although it is too soon to evaluate the effectiveness of this approach, it is a program well worth reviewing as a potential model for other states.

## NOTES

1. As used in this paper, *competitive advantage* refers to the production and distribution of goods from one area into a specific market at a cost less than or comparable to similar goods from other areas. Competitive advantage is distinguished from comparative advantage, which in economic literature leads to a region specializing in what it produces most efficiently even if it could be competitive in a less-favorable commodity. Pursuit of *comparative advantage* leads to a global optimum for consumers; competitive advantage results in less specialization and a more sound regional development policy.
2. No analysis of the Maine sugar-project failure has been published. I was involved with the project, and I conclude that it failed because of over support of the plant itself. Other causes are unrealistic optimism and a lack of hard analysis of the project. (See Federal Reserve Bank of Boston, 1964.)
3. Information about the Agricultural Research and Development Grant Program is available from the Division of Rural Resources and Development, New York State Department of Agriculture and Markets, 1 Winners Circle, Capital Plaza, Albany, NY.
4. Conclusions drawn from the Council of State Governments' survey must be limited because the survey is informal at publication date and no follow-up has yet been made to assure the accuracy or consistency of the responses. The survey is available from the Center for Agriculture and Rural Development, P.O. Box 11910, Iron Works Pike, Lexington, KY.

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# STATE STRATEGIES FOR PROMOTING AGRICULTURAL EXPORTS

Mark G. Popovich

This paper explores the strategies some states have adopted to expand their farm exports. The information presented was gathered in September and October 1987 through telephone interviews with program directors/managers in 16 states. The states were selected based on their reputations for effectiveness or innovation (see note 1). Some states were added to provide regional balance. The states contacted include

- East: Massachusetts, New York
- Southest: Florida, Georgia, North Carolina, Virginia
- South Central: Louisiana, Oklahoma, Texas
- Midwest: Kansas, Michigan, Missouri, Wisconsin
- West: California, Oregon, Washington

The paper begins with a review of recent trends that have produced extreme fluctuations in the level of U.S. agricultural exports. A renewed interest at the federal and state levels in agricultural-export promotion was sparked by the growing financial distress of some farmers in the eighties, exacerbated by the sharp drop in American exports. The introduction concludes with a brief assessment of the near-term prospects for improving the nation's exports.

This paper also includes a discussion of key strategy decisions states confront in building an export-assistance program, describing elements of an overall state strategy. These programs are organized into three main categories:

- ***helping the sellers*** by generating trade leads and building the skills needed to succeed
- ***reaching the buyers*** through trade shows and other alternatives
- ***developing the market*** by identifying new marketing opportunities and assisting firms in product development or refinement

Finally, three notably innovative state programs are described and some guidelines are presented for crafting an effective state strategy.

## AMERICAN AGRICULTURE ON THE WORLD TRADE ROLLER COASTER

For the past 15 years or more, America has been the world's supermarket. With production increases far outstripping domestic demand, hungry nations could shop the U.S. market to meet their needs for food and fiber. American export trade has been big business, and it fueled a steady improvement in the farm economy. While the number of farmers has declined, the agricultural sector continues to play a major role in the U.S. economy. It still accounts for 17.5% of our gross national product and is our nation's largest single source of foreign-exchange earnings (USDA, 1987).

The unprecedented growth in demand in the world market for U.S. farm products in the seventies reflected the dual forces of increasing foreign consumption and slower expansion in global production. Growth in world agricultural trade increased from 3.5% per year in the fifties and sixties to 4.7% in the seventies. U.S. agricultural exporters reaped disproportionate benefits from these expanded trade opportunities, and export growth accelerated from 4% to over 10% per year (Thompson, 1987).

Ballooning exports substantially improved the relative position of American producers in the international marketplace. By 1981, the nation's exports had grown to command just less than 40% of the volume of all world trade in agriculture—up dramatically from 23% just 10 years earlier (U.S. Congress, 1986).

The late seventies proved to be extraordinarily presperous for much of the farm sector, largely because of the export boom combined with advantageous federal farm policy. From 1975 to 1980, farm output rose a modest 9% while asset values doubled and gross farm income jumped 50% (Council of Economic Advisors, 1987).

But American agriculture not only benefited from burgeoning exports, it became dependent on exporting at or above record-setting levels. By 1980, more than one-third of U.S. cropland was committed to producing for export (Thompson, 1987).

Unfortunately, the export-fueled golden age was short lived. The reckoning began to unfold as the value of American farm exports slipped precipitously from a peak of $43.3 billion in 1981 to $29 billion in 1985 (Council of Economic Advisors, 1987). The causes of the reversal in world-market conditions for U.S. agricultural exports included

- a global recession that reduced consumption
- reduced consumption in developing nations—buyers of one-third of American exports—hard hit by the dual effects of global recession and growing international debt

- increased export subsidies in some nations and new quotas and tariffs in others
- improved production—even self-sufficiency—in nations previously more dependent on external supplies
- appreciation of the dollar by more than 40% against most other currencies
- federal farm policies that set prices for major commodities that discouraged some buyers and encouraged increased production by other suppliers

The reversal in world markets for U.S. farm goods was a major contributor to the mounting financial stress that pushed thousands of farms to—or over—the brink of bankruptcy in the eighties. As red ink began to flood many farm balance sheets, policymakers in Washington and the state capitals scrambled to identify the causes of and remedies to the economic crisis in farming.

While the debate in Washington on a new federal farm bill became a divisive political battle, there was an early consensus on the need to expand the nation's farm exports. In fact, the first important decisions made on both sides of Capitol Hill involved subsidies to increase foreign sales, "signalling the near-universal intention to make export assistance a centerpiece" of the new plan. The pressures were so great to improve exports that even the administration, long opposed to an expanded federal role, was prompted to announce its own 3-year, $2 billion export-subsidy program. The new farm bill, as finally enacted in late 1985, contained significant new provisions, such as planned reductions in commodity-price supports and increased export subsidies, that promised to boost U.S. sales to world markets (U.S. Congress, 1987).

However, the interest in government policies aimed at improving exports was not limited to Washington. The bust in exports also generated renewed attention to state programs that promote overseas sales. Some states sought to undertake more vigorous leadership roles. They revised their strategies, targeted their efforts, innovated in design and delivery, and devoted additional staff and financial resources to assisting agricultural exporters and promoting trade.

Many factors—such as macroeconomic policy, world population and economic-growth rates, federal farm policies, and international trade agreements—can overwhelm the influence of even the best state export programs. And the current environment makes efforts to expand exports a difficult, uphill battle. Therefore, a swift recovery in exports does not appear likely. Some experts predict U.S. agricultural exports may grow only by 4% to 5% per year for the remainder of the decade (Thompson, 1987). However, for some exporters state trade promotion can lead to renewed growth and profits.

## ELEMENTS OF A STATE EXPORT STRATEGY

States differ widely in the types and ranges of products they have that are likely to be in demand in world markets. They also vary in the level of funding available to support export promotion. None have programs large enough to work all parts of the globe, for all products, and for all potential traders (see note 2). Therefore, states must choose which products, geographic targets, and types of exporters are to be emphasized. Making these decisions requires answering the key questions that define a strategic approach.

### Determining What Products to Emphasize

Most U.S. agricultural exports (measured by volume) are raw commodities. States may have only a limited ability to affect the level of these exports. These commodities are interchangeable and available from many sources. Often the only factors considered in a sales decision are delivered price and quantity. However, a number of states include commodities in their export efforts. For example, Oklahoma lists cotton and wheat among the products it promotes. Kansas, working through its corn, soybean, and sorghum commissions, participates with the U.S. Feed Grains Council in market-development programs. Also, in a more targeted effort, Kansas is working with exporters to expand opportunties for more direct purchase of feed grains and livestock in several countries. The Kansas program recognizes that states can have only a limited impact on total commodity sales.

For most states, commodities such as wheat, corn, and soybeans do not appear to be the main focus of export efforts. Most states emphasize or plan to emphasize processed or high-value products (HVP) in their export programs. To a great extent, this decision reflects the status of world food trade. The value of HVP trade has already surpassed that of lower-value bulk commodities, and it is estimated that the world HVP market could rise by 9% to 12% per year through 1990 (U.S. Congress, 1986).

Of the 16 states surveyed, 14 listed processed product or HVPs as an important emphasis in their programs. Those states are

California
Georgia
Kansas
Louisiana
Massachusetts
Michigan
Missouri
New York
North Carolina
Oregon
Texas
Virginia
Washington
Wisconsin

In the past, most attention in state programs was paid to demand development—expanding the sales of the state's existing products to world markets. But some states are developing more market-oriented approaches that assess overseas market demand and then find products to meet it. For example, Wisconsin follows a two-pronged approach that is a hybrid of the demand-creation and market-oriented models. Following the traditional model, the state continues to work with existing producers to find new markets. But Wisconsin's preferred approach starts by assessing market niches and works backward to identify existing products or develop new products tailored to these opportunities. Wisconsin also touts the importance of expanding the definition of *product* to include services. For example, a recent sale of dairy stock to Thailand included the export of dairy-herd-management services of a university specialist.

Oregon also has an active overseas trade presence. When participating in trade shows, the state includes several Oregon products that cannot be imported under current laws or regulations of the host nation (such as tarriff restrictions). The aim is to increase pressure to reduce barriers to trade in those products.

## Determining the Geographic Focus

State program directors commonly suggest that they are trying to cover the globe with their export trade efforts; however, none have sufficient human or financial resources to accomplish such an enormous task. As a result, states select particular regions for emphasis.

A relatively large program can provide coverage for major parts of the globe. For example, a Texas program dissects the world into four regions: Europe, Latin America, the Orient, and the Middle East/Africa. The state has at least one person who is fluent in the area's language and experienced in the export business monitoring each region.

Other states have more modest resources but attempt to maximize their impact through targeting. For example, Kansas developed an annual marketing plan based on assessing growth in overseas market demand and matching it against products available in the state. The outcome is a 2-year program that targets the state's effort by market and product.

Some states have natural advantages in their efforts to target geographically. California, Oregon, and Washington—having advantages in location and diversified production—have long emphasized expanding sales in the Pacific Rim. But the slow-down of growth in other markets and the growing incomes and populations in Pacific Rim countries have attracted attention from states in other regions of the country as well. Virginia, Kansas, Missouri, and New York are all placing new emphasis on this increasingly important market. In the last year, North Carolina has also focused much of its effort on Asia.

Although the Pacific Rim may predominate, it is not the only area receiving increased interest by state program managers. For example, Missouri, Wisconsin, Kansas, and three other midwestern states are cooperating to conduct a joint analysis of marketing opportunities in Caribbean countries.

## Determining Who To Work With

State export promotion/assistance programs are almost always available to anyone who requests help. But most large firms have the resources to hire or buy the expertise they need to succeed in foreign markets. Therefore, most requests for participation in state programs come from small and medium-sized firms, many of which are just beginning to explore export opportunities.

Not all operators seeking state help are in strong positions to carry out an export strategy. Therefore, the trend is to qualify sellers before directly involving them in state promotion or assistance efforts. For some time, state programs have informally weeded out those who are unprepared to compete for new markets overseas. Recently, the process has become more rigorous and systematic. For example, Missouri has increased its efforts to qualify sellers. Missouri's export chief has established periodic visits to prospective exporters as an important responsibility of marketing specialists. Washington has also begun to focus its attention on firms who are already involved in exports, are successful in domestic markets, or have a well-developed business strategy.

Another alternative is to work with large organizations that represent individual exporters. In Florida, the grower and producer associations are well organized, very sophisticated, and in regular contact with their members. The Florida program works directly with these groups to disseminate information on trade opportunities to their members. Similar arrangements between the state export program and producer groups are used in Kansas, Oregon, and Washington.

Finally, the focus of Oregon's progams is shifting from small companies to brokers (marketers that represent several companies). Brokers have traditionally been important in international sales, and some can benefit from working with state programs to improve their effectiveness.

## Helping the Seller

States use a variety of techniques to promote export programs by helping the seller. Such techniques include generating trade leads and training the exporters.

**Generating trade leads.** Every state contacted in the survey is involved in generating export-trade leads for state producers. Finding and disseminating these leads is one of the traditional responsibilities of state programs. Three common sources states use to produce these leads are

- the Foreign Agriculture Service
- trade directories
- direct interaction with buyers

By far the most frequent state approach is to use information provided by the U.S. Department of Agriculture's Foreign Agricultural Service (FAS). FAS monitors market developments and provides states with access to a computerized list of trade leads. Every state surveyed uses the FAS system to some degree. However, survey results suggest the FAS system does not meet the needs of all state programs. Some states indicated the FAS information is often too outdated or unqualified to generate sales. In one midwestern state, the FAS system generates only about 5% of the trade leads that the state program disseminates.

States also use export directories to generate leads. These publications provide the names and other contact information for state firms interested in export trade. They are commonly distributed to sellers, brokers, and FAS outlets throughout the world. Listings are generally organized by commodity, product, or service group. Some directories also contain trade-oriented or producer associations and may provide information about government assistance programs. The *Wisconsin Export Directory*, for example, is published in six languages and is used to promote agricultural technology, farm machinery, and food-processing equipment as well as a broad range of agricultural and food products.

But being too inclusive with the directory listings can create problems. As one state director concluded, "If you try to list everything and everybody, you'll defeat your purpose—it won't be used by potential buyers." The effectiveness of the directories can also be reduced by including firms that are unprepared to respond to sales inquiries. (Again, state efforts to qualify sellers may be applied to assembling directories.) Washington distributes a directory with almost 1,000 firms but has tried to ensure that each is ready to do export business. "There isn't a company included on the list that wouldn't be ready today to negotiate and write up a sale," according to Washington's export manager.

To provide information that is more timely than that found in the large state export directories, a number of states produce other types of publications more frequently. For example, *Georgia International Advertiser* is published quarterly. Ads, including contact information and bank references, are written by export firms and are included without charge. The *Advertiser* is mailed to 3,000 known buyers. Texas and California also distribute specialized export newsletters.

Trade information must be timely to be useful. Oregon finds that trade leads more than 2 weeks old seldom result in sales. The state keeps people in other countries nearly all year long conducting trade shows or market research and emphasizes rapid distribution of the information.

While most states use FAS and trade directories to generate leads, some states interact with buyers directly. These interactions include

- ***Overseas travel and trade shows:*** Most states are directly involved in international trade shows.
- ***Overseas offices:*** For most states, these offices are multipurpose operations. They can provide information and logistical assistance to support agricultural exports. Georgia, Kansas, California, New York, Washington, Michigan, and Oklahoma all have overseas offices.
- ***Personal services contracts:*** Hiring in-country experts under contract can be an effective and less expensive alternative to establishing overseas offices. Kansas uses small contracts to support its 2-year targeted programs.
- ***Cooperation with trade organizations:*** Missouri reports success from its efforts to build cooperative relationships with the Japanese Export Trade Organization and the Korean Organization of Trade Associates.

Once in hand, trade leads must be distributed to potential state suppliers. Computerized systems have been harnessed to ease this task in California, Kansas, Louisiana, Texas, and Washington. Texas, in particular, has a well-developed system for linking up with sellers. After matching trade leads against a list of known suppliers, three suppliers are selected and sent a letter that provides them with all the information available on the lead. The system also includes follow-up contact by Texas market specialists. Michigan uses a similar approach, but without the aid of the microchips.

**Training the exporters.** Seminars have become important educational tools as state programs have expanded their efforts to deliver information and assist in developing the skills needed to succeed in export marketing. Of the 16 states surveyed, 9 present or cosponsor export seminars.

States can use seminars to provide an overall introduction to exporting for the uninitiated; however, they more commonly organize seminar sessions around specific exporting problems. Such focused sessions allow the in-depth treatment needed to address more complex issues adequately. For example, states reported sponsoring the following seminars:

| | |
|---|---|
| Florida | using letters of credit |
| | understanding and meeting import standards |
| | negotiating contracts |
| Wisconsin | packaging for foreign markets |
| Washington | evaluating foreign product markets |
| | meeting labeling requirements |
| | grading and other product restrictions |
| Oklahoma | financing export trade |
| | language and culture |
| | negotiating long-term contracts |
| Oregon | agricultural marketing and economic development |
| | working with international banks |

However, states are experiencing a growing disenchantment with the traditional approach to seminars. Serving large groups with broad topics does not always produce the desired results. Texas has stopped providing general seminars and now focuses sessions on the unique problems and opportunities in a specified region of the world. Wisconsin seminars are getting smaller to get better. Their efforts target industry groups with specific topics for workshops limited to 5 to 10 producers.

States are also facing increased competition for audiences interested in learning about exporting. Because the topic has attracted wide interest, the number of government and private-sector offerings has skyrocketed. In Wisconsin, three export seminars were once offered on the same September date. Washington has a similar problem with about 100 organizations or clubs offering export seminars. Unfortunately, many of these competitors may not deliver quality programs. A state study evaluating these programs concluded that fewer than 10 were worthwhile. Georgia has a similar problem but is using cooperation to control the glut. For the past year, private and public organizations offering export seminars in Georgia have met regularly on an informal basis to share information, coordinate where possible, and promote efficiency.

## Reaching the Buyer

Most states are involved in international trade shows. Generally, the state's role includes recruiting and preparing state companies for participation. Some states rent space, which they then sublet to companies to promote a state identity to potential buyers. Others have concluded that there is little advantage to be gained by linking suppliers to a state identity or theme.

A handful of states use subsidies to help recruit and defray the costs incurred by private companies in participating in trade shows. In Louisiana, space rental in the state booth may be subsidized through a low-cost sublease. The state also works with FAS to help subsidize the cost of transporting samples and displays. Further, if the firm does not have a representative at the show, state representatives quote prices and terms to buyers if requested in advance to do so by the company.

Oklahoma also subsidizes space rental, particularly for new entrants, but this comes with conditions. Participating companies must agree to bring any trade leads back to the state. If the lead has not been pursued after 3 months, the state releases the lead to other companies.

Oregon has chosen not to subsidize any expenses for participating companies. In fact, the companies pay all of the state's overseas expenses.

The utility of trade shows is not endorsed universally. Some states, such as Georgia, have never been deeply involved. Wisconsin, which continues to reduce its trade-show itinerary, is looking for other ways to contact buyers. Florida officials have also concluded that doing the shows is not good enough anymore. While the shows help establish a presence, the key to success is the follow up that cements long-term trade relationships.

Personal contact can supplement or substitute for participation in trade shows. The alternatives that states are trying include more trade missions (taking state producers overseas and working with visiting foreign buyers), point-of-purchase promotions in supermarkets and other customer outlets, and efforts to get products on foreign restaurant menus.

## Developing the Market

State techniques to develop markets include analyzing market trends and developing or refining products.

**Analyzing market trends.** Understanding foreign-market trends is essential for a consistently successful state export-promotion effort. Many states have found that they can generate new exports by niche marketing—identifying and capturing specialized market opportunities. But staying on top of target markets and finding new niches to exploit requires detailed information and the expertise to interpret the implications.

Standard sources of foreign market information—the FAS and export trade publications—are used to some extent by all the surveyed states. However, while this data may be the best available for portraying a composite picture of national markets, it seems too general for detecting niche-marketing opportunities.

To improve their competitive positions, some states invest in more sophisticated market analysis. For example, Florida has begun a 5-year study that will generate detailed information on European imports of fresh fruits and vegetables. When completed, the study will help target state promotion efforts. In the midwest, six states have banded together for a comprehensive investigation of export opportunities in Caribbean countries. Missouri, a promoter of the joint midwest project, is also getting market-analysis help through an internship program the state runs cooperatively with the University of Missouri. Interns contact overseas buyers and trade-show sites to gather comprehensive information on the competition and to identify untapped sales opportunities.

Market analysis customized to the needs of individual companies is a further refinement of this approach. Wisconsin's International Agricultural Business Center, for example, focuses much of its attention on market-trend analysis. The staff members help companies complete market analyses and 5-year export business plans. These analysis and business-assistance programs are some of the Wisconsin program's most cost-effective investments.

**Developing or refining products.** Few states contacted in this survey are directly involved in product development or refinement for export markets—a somewhat surprising result given the number of relatively new state programs aimed at improving food processing and developing new products for domestic markets (Nothdurft, 1986). Perhaps states will harness these new institutions and mechanisms more directly to export opportunities in the future. However, while state program managers commonly caution that products successful in domestic markets are not always popular overseas, states seldom offer direct assistance in product development.

In this area, Washington may once again be in the forefront of innovation. Since 1985 a portion of the state funds dedicated to agricultural research has been allocated directly to the department of agriculture. The idea behind the International Marketing Program for Agriculture Commodities and Trade is to ensure that at least part of the state's agricultural research investment is tied to marketing needs and product development. Under the program, state funds help support market research, identify new alternative crops, assess consumer preferences, develop or refine products, and provide information on foreign cultures and consumer tastes. The program has already supported some important successes by Washington exporters. Through careful analysis, a new sales opportunity for the state's asparagus growers was identified in Japan. The key to expanded sales was to improve the storage and transportability of the asparagus crop to have a high-quality product in the market during the 3 weeks between the end of California production and the start of marketing the Japanese crop. Under the program, a postharvest university specialist worked with growers and successfully tackled the challenge of harvest, storage, and transportability. In the last 2 years, shipments of Washington asparagus to Japan have increased from 20 tons to over 150 tons, with 1988 exports projected to exceed 300 tons.

Wisconsin can also claim success in product development. A market analysis suggested a marketing opportunity for the state's sausage makers. International-airline buyers were interested in purchasing packaged meat sausages, but the packages had to be smaller than those that were available at the time. Once the packaging preferences were met, the producers had a new sales outlet.

Finally, California can boast of several new product-development projects—primarily private-sector-funded work in the state university system. These efforts develop new product ideas, test markets, and in some cases may actually produce and market new agricultural products (Saunders, 1987).

## Other State Innovations

Certifying export quality, resolving international-trade problems, and providing funds for export promotion to private companies are not traditional responsibilities of state programs. But Oregon, Texas, and California now have initiatives in place to address these issues, and they are among the most innovative initiatives uncovered by the survey.

**Assuring quality.** The Oregon Department of Agriculture has the most unusual quality-control operation in the world. The department operates the only lab outside of Japan that can assure that products meet the standards set by the Japanese Ministry of Health and Welfare. Not only has the lab eased the way for Oregon exports, it has prompted food- processing and -export companies to relocate to the state.

**Resolving international-trade problems.** Over the years, extreme fluctuations in the value of the Mexican peso and American dollar placed new strains on Texas livestock exports. Facing little likelihood of help from the federal government, Texas Agricultural Commissioner Jim Hightower assumed a job usually left to professional diplomats. In the summer of 1987, Commissioner Hightower completed negotiations and entered into a memorandum of understanding with the Mexican secretary of agriculture. Under the terms of the agreement, Texas ranchers will be paid one-third of their sale price in cash and will finance the remainder at 10% interest over 3 years. Guarantees for all sales by the Mexican cattlemen's associations are a key aspect of the agreement.

**Matching funds for export promotion.** Under California's new agricultural export program, over $10 million in state funds were awarded in the past 2 years to match export-expansion investments made by private companies. Modeled after the popular FAS Cooperators Program, the state's effort is focused on supporting individual product and brand promotion. Eligible investments under the 50/50-match program include advertising, point-of-purchase promotion, market development, participation in trade shows, technical assistance, and consumer promotions.

## CONCLUSIONS AND GUIDELINES

Most experts predict that restoring high levels of U.S. agricultural exports will not come quickly or easily. Many of the key factors that affect world agricultural trade are well beyond the reach of state policymakers or program managers; however, those directly involved in operating state export programs have made a strong case that their efforts can contribute to an improved ability to capitalize on new agricultural export opportunities. In the eighties, many states have expanded their investments in export promotion.

The results of this survey document increasingly sophisticated strategies and tools that states are using to expand their exports. The following four general guidelines are proposed for states to use in designing more effective agricultural-export strategies:

### Guideline 1: Be Strategic

**Target and focus.** Even generous funding for state programs cannot cover the costs of providing all services to all people for all potential export markets. The resources allocated to state export programs are modest compared to the task. Targeting—by product, market, and client—is a crucial first step in designing a program. Many program managers believe that the best approach is to address emerging or niche marketing opportunities, rather than focusing on what is already in supply or in surplus. This will require expanded attention to analyzing market trends, developing or refining products, and delivering hot trade leads quickly to qualified brokers and suppliers.

**Innovate; don't copy.** Each state presents unique opportunities and must overcome unique obstacles. Program resources, both human and financial, vary from state to state. Even the structure of the agricultural industry varies across states and regions. Understanding and building on these unique attributes is a better path to success than adopting a model that has succeeded elsewhere. Too many factors must combine to produce an effective program. They are seldom well understood and often cannot be duplicated. Programs must be tailored to capitalize on a state's strengths.

**It's a long race: Don't get winded.** Building long-term trade relationships—both at home and abroad—is a central component of successful programs. Exporters and state programs that enter and leave the marketplace on the basis of passing trends will not produce winners.

## Guideline 2: Collect and Deliver the Best Possible Information

Supplying information on markets, transaction mechanics, culture, and language is the greatest service state programs can provide to exporters. Strategic decisions for state programs and exporters are based on these data. Producing and delivering information is expensive, complicated, and not always appreciated by outsiders, but it is critical to the success of export programs.

## Guideline 3: Don't Preach and Run; Teach

The state must do more than urge companies to enter the export arena. The skills, information, and experience of exporters can be enhanced by state efforts. Thus, states should sponsor seminars, technical assistance, guided trade shows, and missions for exporters that are designed and delivered to meet explicit teaching objectives.

## Guideline 4: Focus on Product Development or Refinement

Products that are successful at home can fail in new markets. Export promotion focuses increasingly on niche markets and high-value products; therefore, product development or refinement will continue to grow in importance. To be successful, public and private organizations must be able to cooperate and coordinate.

## Guideline 5: Prove It and Spin It Off

Virtually all of the state-program activities described in this paper deliver products of real value to their customers. Once a service is proven, customers should pay to support it. For some services, payment could be contingent on success. States can provide the test to ensure that innovative ideas are actually good ideas. They they can either place them on fee revenues or spin them off to organizations outside of state government.

Without more extensive information on and evaluation of state export-promotion activities, any proposed guidelines will be incomplete and subject to challenge. The five guidelines presented in this paper were developed from discussions with state program managers and others with marketing expertise. Some of the literature on export trends has also been used. These suggestions may best serve as initial guideposts in crafting export-promotion strategies.

## NOTES

1. In addition to the information collected in an earlier study of state domestic-marketing programs, state selection for this survey relied upon information from the 1984-1985 *State Market Program Profile Survey* conducted by the National Agricultural Marketing Officials (NAMO, 1985), contact with regional organizations, and recommendations from program directors.
2. In a draft of these proceedings in November 1987, Ospina and Gunderson provided the following data on expenditures for farm export programs:

| State | Export promotion budget | Fiscal year |
|---|---|---|
| California | $ 300,000 | 1985 |
| Florida | 4,700,000 | 1982 |
| Texas | 3,400,000 | 1982 |
| New York | 2,500,000 | 1982 |
| Oregon | 2,000,000 | 1984 |
| Michigan | 2,300,000 | 1982 |
| North Carolina | 1,900,000 | 1982 |

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# THE ROLE OF STATE GOVERNMENT AGENCIES IN FARM FINANCING

Fred C. White

U.S. farmers have experienced a dramatic deterioration in their balance sheets from 1981 to 1986. Farm-asset values have declined by $231.8 billion and total farm liabilities have increased by $21.7 billion during these 5 years (USDA, 1986). Depressed net farm incomes and deteriorating balance sheets have reduced credit worthiness for large numbers of U.S. farmers. Consequently, commercial banks have reduced their involvement in farm finance. The farm-credit system, which includes production-credit associations and federal land banks, is also attempting to restore financial soundness to its operations that place limits on its lending activities. The process of restoring financial soundness to the farm-credit system depends on the magnitude of further loan losses and the duration of the current depressed conditions in agriculture.

Conditions of farm financial stress have increased farmers' needs for credit but, at the same time, have reduced both the willingness and ability of traditional credit institutions to meet those needs. Therefore, over half of the states have responded with some type of farm-credit program. Current state programs include (Gardner, 1986)

- linked-deposits (10 states)
- low-interest loans (10 states)
- loan guarantees (7 states)
- interest buy-downs (6 states)
- interest deferrals (4 states)

In addition, 17 states use revenues from agricultural bond sales to finance new farmers.

The purpose of this paper is to analyze the role of state government agencies in farm financing by

- developing a conceptual framework related to public versus private supply of credit for farmers
- identifying state versus federal roles in supplying credit for farmers
- analyzing the externalities of agricultural production as a basis for state farm-financing programs
- developing and applying a budgeting methodology to assess the benefits and costs of selected state farm-financing programs
- evaluating the options available to state governments for farm financing

## CONCEPTUAL FRAMEWORK FOR PUBLIC-SECTOR INVOLVEMENT IN FARM FINANCING

The farm financial crisis of the eighties has been severe and has taken a heavy toll on farmers. Many farmers have experienced such severe cash-flow problems that they have been unable to meet debts and have been forced out of business. Such farm failures have widespread repercussions on agribusinesses and rural communities. Many rural communities that previously served populous farming areas have deteriorated as the numbers of farm owners and farm workers have declined. The tendency for people to leave rural areas has affected the viability of many rural commercial enterprises, churches, community services, and in some cases entire communities.

Recognition of these links among farms and rural communities, which are forms of externalities, provides a basis for possible public action in farm financing. A private financial institution would not consider these externalities but would compare only expected private benefits and costs. If expected benefits to the financial institution are equal to or exceed the expected costs, it would consider the loan application acceptable for funding. However, from society's perspective, all relevant benefits, including private benefits and externalities, should be compared with all costs. A loan would then be considered acceptable if all expected benefits (including externalities) are equal to or greater than all expected costs. Therefore, many farm loans that might not be considered appropriate from the perspective of a private financial institution might be considered appropriate from society's perspective.

Consider the case depicted in figure 1 in which the marginal efficiency of an investment in farming from society's perspective ($MEI_N$) is greater than the marginal efficiency of investment from the perspective of private lenders ($MEI_1$). The optimal level of farming investment is found by equating the market rate of interest (r) with the marginal efficiency of investment from society's perspective ($MEI_N$)—identifying $I_2$ as the optimal level of investment (Oates, 1972). However, private lenders would equate the marginal efficiency of investment from a private perspective ($MEI_1$) with the market rate of interest—identifying $I_1$ as the appropriate level of farming investment. Because the optimal level of farming investment $I_2$ is not achieved in the private market, the public sector is justified in considering programs that increase the level of farming investment from $I_1$ to $I_2$.

The public sector can follow two courses of action to expand farming investment. First, it can provide the additional funding needed to achieve the optimal level of investment. Second, it could reduce the costs to financial institutions or provide grants so that the effective rate of interest is reduced to the level r′, which achieves an optimal level of investment ($I_2$). Of course, some combination of these programs, which would lower the cost to private lenders and involve some public-sector financing, can also be used to reach the optimal level of farm investment.

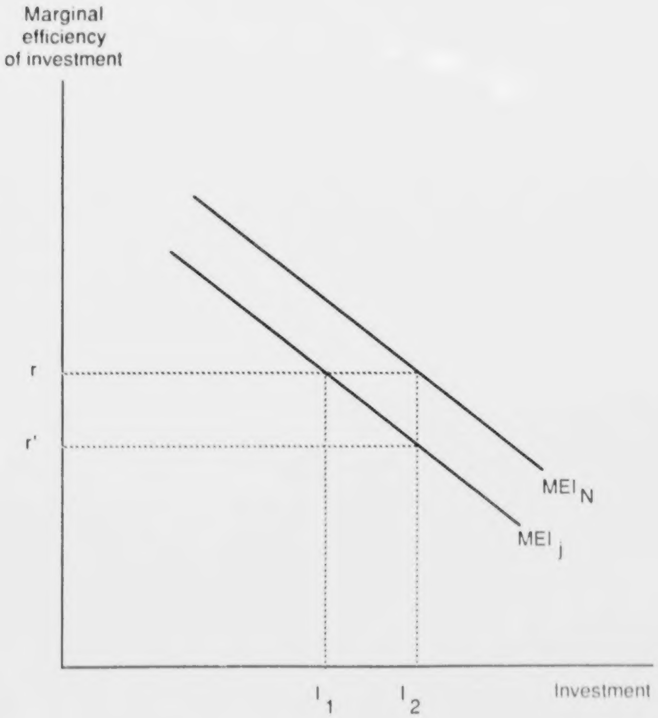
Marginal efficiency of investment
r
r'
MEI N
MEI j
I 1
I 2
Investment

Figure 1. Adjustment for external benefits.

## Roles of State Versus Federal Governments

The conceptual framework outlined above deals with the public and private sectors' roles in farm finance; however, no distinction is made between the roles of the state governments and the federal government.

Public-finance theory is that the optimal distribution of costs between the state government and the federal government depends on the geographical distribution of the benefits from the program (Musgrave and Musgrave, 1976). If all of the benefits of a public program accrue to people within the state and do not spill over to other states, that state should bear all of the cost of the program. Alternatively, if all of the benefits spill over to other states, other states should pay for the program. This cost could be shared by having the federal government pay for the program. If some of the benefits accrue within the state and some spill over to other states, the optimal financing procedure is for the state government to pay for the program according to its share of the benefits and for the federal government to pay for the remainder of the program. Another way to share costs is for the federal government to support some programs and state governments to support complementary programs. Therefore, states need to examine the nature of current federal programs.

The Farmers Home Administration (FmHA) and the Commodity Credit Corporation (CCC) make federal farm loans (U.S. Congress, 1986). FmHA offers insured loans and guarantees some loans of other lenders. To qualify for FmHA loans, farmers must demonstrate that they cannot obtain adequate loan funds at reasonable costs from other lenders. Through appropriations, Congress limits FmHA operations by determining the level of administrative expenses and loan losses that FmHA can incur. Furthermore, Congress specifies lending authorizations that determine the maximum amount FmHA can lend under its various programs. FmHA farm-loan programs focus on farm operators with limited resources and on those affected by disaster; therefore, many farmers do not qualify. Even fewer qualify now that Congress has reduced FmHA's emergency-loan program. The limited nature of FmHA appropriations also limits the number of people who can obtain FmHA loans.

The CCC, which is a USDA agency, provides financial assistance to farmers primarily through deficiency payments and nonrecourse loans for selected crops. This type of financial assistance is linked directly to participation in government farm programs. Payments received under the wheat, feed-grain, cotton, and rice programs are limited to $50,000 per person per year (Glaser, 1986). Obviously, these CCC programs do not apply to most farmers. Furthermore, many farmers who are eligible for these programs do not receive adequate support from them. Therefore, state programs could be developed to address the needs that are not met by FmHA's and CCC's limited programs.

## Externalities Associated with Farm Financing

Because some farmers do not qualify for federal assistance, states have an opportunity to provide farm-finance programs. But supporters must demonstrate that sufficient externalities are associated with farm-financing programs to warrant state programs.

Changes in agricultural production affect an area's economy in two ways. First, a change in agricultural production is related directly to changes in the economy's development. For example, increased investment through farm financing causes a direct change in farm earnings, net farm income and(or) farm-labor requirements, and farm-labor earnings. Second, this change rebounds throughout the economy to change the incomes of other sectors. Increases in agricultural production as a result of expanded farm financing affects not only farmers but also income and employment in agribusiness firms that process and handle agricultural products and supply inputs to farming. Subsequently, agribusiness firms purchase from other industries, and workers in agriculture and agribusiness spend money for goods and services produced by other industries. Individuals, communities, regions within states, and entire states benefit from such economic activity.

Input-output analysis is used to measure the impact of increased agricultural production on each state's economy. Agricultural-output and employment multipliers reflecting the economic impact of agricultural production are reported for each state in table 1. The agricultural-output multiplier is the total amount of revenue generated by the initial expenditure in farming through spending and respending in all other sectors. It quantifies the impact on all other sectors' outputs resulting from a $1 increase in farm output. According to the average agricultural-output multiplier in table 1, every $1 increase in agricultural production increases the total sales in the state's economy by $2.11 after accounting for all links to the other sectors. The agricultural-employment multiplier is the total number of jobs created by each $1 million in agricultural production. According to the average employment multiplier in table 1, each $1 million in agricultural output creates 50.4 jobs. Over half of these 50.4 jobs are in the nonfarm sector.

Variations in the size of multipliers can be attributed to such factors as labor-use intensity in production, profitability of production, and overall size of the agricultural sector. The estimated agricultural-output multipliers for $1 production ranged from $1.58 in Nevada to $2.88 in Kansas. The northern plains, corn belt, and

Table 1. Agricultural-output and -employment multipliers by state.

| Region and state | Multipliers |  | Region and state | Multipliers |  |
|---|---|---|---|---|---|
|  | Output[a] | Employment[b] |  | Output[a] | Employment[b] |
| Pacific |  |  | Delta |  |  |
| Washington | 2.07 | 38.4 | Arkansas | 2.42 | 60.5 |
| Oregon | 1.93 | 51.9 | Louisiana | 2.05 | 55.3 |
| California | 2.15 | 39.5 | Mississippi | 2.27 | 56.7 |
| Alaska | 1.66 | 48.6 | Northeast |  |  |
| Hawaii | 1.76 | 34.5 | Maine | 1.62 | 36.0 |
| Mountain |  |  | Vermont | 1.77 | 40.2 |
| Montana | 2.13 | 49.7 | New Hampshire | 1.60 | 59.4 |
| Idaho | 2.10 | 43.2 | New York | 1.72 | 49.6 |
| Wyoming | 1.94 | 56.9 | Massachusetts | 1.78 | 45.7 |
| Nevada | 1.58 | 24.9 | Rhode Island | 1.68 | 65.0 |
| Utah | 2.14 | 57.9 | Connecticut | 1.67 | 43.7 |
| Colorado | 2.64 | 38.4 | Pennsylvania | 2.02 | 46.6 |
| Arizona | 1.95 | 42.8 | New Jersey | 1.97 | 55.3 |
| New Mexico | 2.26 | 52.9 | Delaware | 2.04 | 22.5 |
| Northern Plains |  |  | Maryland | 1.74 | 42.4 |
| North Dakota | 2.19 | 34.0 | Appalachian |  |  |
| South Dakota | 2.58 | 43.9 | West Virginia | 1.45 | 50.1 |
| Nebraska | 2.69 | 57.2 | Kentucky | 2.39 | 56.6 |
| Kansas | 2.88 | 53.9 | Virginia | 1.91 | 58.1 |
| Southern Plains |  |  | Tennessee | 2.21 | 80.2 |
| Texas | 2.75 | 57.9 | North Carolina | 2.12 | 58.9 |
| Oklahoma | 2.47 | 36.8 | Southeast |  |  |
| Lake |  |  | Alabama | 2.27 | 60.5 |
| Minnesota | 2.45 | 49.3 | Georgia | 2.26 | 51.5 |
| Wisconsin | 2.67 | 56.3 | South Carolina | 1.89 | 74.3 |
| Michigan | 1.85 | 57.1 | Florida | 1.92 | 49.4 |
| Corn Belt |  |  | Average | 2.11 | 50.4 |
| Iowa | 2.47 | 62.0 |  |  |  |
| Missouri | 2.64 | 49.3 |  |  |  |
| Illinois | 2.36 | 46.8 |  |  |  |
| Indiana | 2.30 | 61.9 |  |  |  |
| Ohio | 2.17 | 56.6 |  |  |  |

Source: U.S. Department of Commerce, Bureau of Economic Analysis. 1986. Regional Multipliers. Washington, D.C.

[a] The agricultural output multiplier is the total dollar change in output that occurs in all industries for each additional $1 of final demand for agricultural products.

[b] The agricultural employment multiplier is the total change in number of jobs in all industries for each additional $1 million in final demand for agricultural products.

southern plains had the highest agricultural-output multipliers. The agricultural-employment multiplier ranged from 22.5 in Delaware to 80.2 in Tennessee. The Appalachian and Delta regions had the highest agricultural-employment multipliers.

These figures prove that agricultural production generates externalities within the state. Therefore, it should be economically feasible for state governments to become involved in farm financing rather than experience a reduction in agricultural production.

## BUDGETING METHODOLOGY

This paper uses a budgeting approach similar to the one used by Lowenberg-DeBoer and Boehlje (1983) to analyze the benefits and costs of 13 generic state-finance programs for farming. All of the state programs currently enacted are some combination or variation of these generic programs. The benefits are calculated from the perspective of a farmer receiving a loan to buy farmland or leasing farmland under the state-finance programs. The costs are calculated from the perspective of the state government. Two alternative costs are considered: 1) the cost to the state assuming the borrower does not default and 2) the cost to the state assuming the borrower defaults.

The present value of benefits to the farmer is calculated as

$$PV(B) = \sum_{i=1}^{n} \frac{(rI - iD_i)(1 - t)}{(1 + d)^i} + \frac{I + \Delta I(1-t)}{(1 + d)^n}$$

where PV is present-value operator
B is benefits to the farmer
n is length of planning horizon in years
r is rate of return on assets
I is level of investment or value of assets
$\Delta I$ is appreciation in asset value
i is interest rate on debt
D is level of debt
t is marginal tax rate
d is discount rate

The model is general enough to allow for changes in the value of investment over time. For simplicity, the real value of investment is assumed to remain constant over the next 20 years.

The present value of state government costs is calculated as

$$PV(C) = \sum_{i=1}^{n} \frac{X_i I}{(1 + d)^i}$$

where PV is present-value operator
C is cost to the state
n is length of planning horizon in years
X is rate of state expenditures per $1 of investment
I is level of investment or value of assets
d is discount rate

Government costs are calculated first for a 20-year period without default and second for default at the end of 5 years. Thirty percent of the outstanding principal is assumed lost upon default. With a default, operating costs through only 5 years and the loss associated with the default are assumed to be the only costs involved. However, the state does not bear the loss associated with default in all cases. Under some programs, financial institutions bear the losses associated with the default.

All loans are assumed to be made for 20 years, with 100% debt financing unless otherwise stated. The market rate of interest and the discount rate are both assumed to be 10%. Relevant marginal tax rates are assumed to be 28% for the federal income tax and 5% for the state income tax. Net farm returns before interest, rent, and taxes are assumed to be 15% of asset values. The U.S. average rate of return on farm assets was 22% for 1981 to 1985 (USDA, 1986). A lower return is used in this analysis for a more conservative estimate of benefits and to allow the possibility that the returns to farmers in these programs might be below-average returns. The rental rate used in this analysis is 5% of asset values, which is consistent with the U.S. average rate (USDA, 1985).

This discussion considers six types of loan programs that charge farmers the market rate of interest:

- ***Direct loan:*** The state government issues bonds at the current market rate and charges the farmer a rate high enough to cover all state costs. This program is a standard to which other programs are compared.
- ***Secondary market:*** The state generates funds for financial institutions to loan to qualified farmers. The cost to the state is assumed to be 1% of the value of the securities handled. No savings on interest rates are assumed to be passed on to farmers.
- ***Linked deposits:*** The state deposits some of its funds in a financial institution to be loaned to qualified farmers. The rate of return on these deposits is assumed to be 4 percentage points below the market rate of interest.
- ***Loan guarantee:*** The state guarantees farm loans. Under such a program, Minnesota places $1 in a fund to back up $10 of loans (Lowenberg-DeBoer and Boehlje, 1983). This 1 to 10 ratio is assumed in this study, and the fund pays the state a rate of return assumed to be 3 percentage points below the market rate.
- ***Tax incentives to lenders:*** The state uses tax incentives to encourage financial institutions to make loans to farmers. An incentive for lenders to participate in such a program is the offer of a tax exemption on interest on loans to qualified farmers. It is assumed that these tax savings are not passed on to farmers in the form of lower interest rates.

- ***Tax incentives to sell farmland:*** The state gives tax incentives to farmland owners to encourage them to sell farmland to qualified farmers. Capital gains equal to 50% of the farmland value are assumed to be exempt from state taxation.

This discussion also considers three types of programs that offer lower interest rates to farmers:

- ***Low-interest loans:*** The state government makes loans to farmers at 4 percentage points below market rates, or the state government reduces interest rates on farm loans offered by other lenders.
- ***Eight-year interest buy-down:*** The state awards a grant equal to 4% of the debt.
- ***Interest deferral/forgiveness:*** The state defers 30% of the interest for 8 years, half of which is forgiven. It is assumed that the state bears the loss of a default by the farmer only if the state actually makes the loan. However, all of the deferred interest (30%) is assumed to be forgiven upon default.

This discussion considers two types of programs related to loan principal:

- ***Principal deferral/forgiveness:*** The state government defers 30% of the principal for 8 years, half of which is forgiven—equivalent to a grant for 15% of the principal with no default. With default, the entire 30% of deferred principal is assumed to be forgiven.
- ***Savings subsidy:*** The state puts up 5% of the investment to help beginning farmers.

Finally, this discussion considers two types of programs to lease land to farmers:

- ***Tax incentives to lease farmland:*** The state government offers tax incentives to landowners who lease land to farmers. The tax incentives are assumed to exempt rent income from state income taxes if the land is leased to qualified farmers.
- ***Land purchase and lease:*** The state buys land and leases it to qualified farmers. The land is assumed to maintain its nominal value throughout the planning horizon if there is no default. If a default occurs, it is assumed that the land is sold after 5 years for the same value as under a direct-loan program.

## BUDGETING RESULTS FOR 13 TYPES OF PROGRAMS

The results of the budgeting analysis are presented in table 2. The six loan programs that use market interest rates provide the same returns to the farmers, yielding a net present value of 52'' for each $1 of investment. Without default, the costs per $1 of these loan programs are quite small:

Table 2. Farmer benefits and state-government costs per $1 of selected farm-finance programs.[a]

| Program | Farmer benefits[b] (in $) | State costs (in dollars) | | |
|---|---|---|---|---|
| | | Without default | Default after 5 yrs[c] | Average |
| Direct loan[d] | 0.52 | 0.00 | 0.27 | 0.14 |
| Low-interest loan[e] | 0.69 | 0.26 | 0.41 | 0.34 |
| Interest buy-down (8 yrs)[f] | 0.65 | 0.19 | 0.14 | 0.17 |
| Linked deposit[g] | 0.52 | 0.13 | 0.07 | 0.10 |
| Interest deferral/forgiveness[h] | 0.57 | 0.07 | 0.11 | 0.09 |
| Principal deferral/ forgiveness[i] | 0.58 | 0.15 | 0.30 | 0.23 |
| Loan guarantee[j] | 0.52 | 0.02 | 0.28 | 0.15 |
| Tax incentives to lenders[k] | 0.52 | 0.03 | 0.02 | 0.03 |
| Tax incentives to sell farmland[l] | 0.52 | 0.03 | 0.03 | 0.03 |
| Tax incentives to lease farmland[m] | 0.57 | 0.02 | 0.01 | 0.02 |
| Land purchase and lease[n] | 0.57 | 0.31 | 0.52 | 0.42 |
| Secondary market[o] | 0.52 | 0.00 | 0.27 | 0.14 |
| Savings subsidy[p] | 0.54 | 0.05 | 0.05 | 0.05 |

[a] All loans are assumed to be based on a 20-year payback period. The market rate of interest and the discount rate are both assumed to be 10%. The federal income tax rate is assumed to be 28%, and the state income tax rate is assumed to be 5%. All figures are net-present-value calculations for a 20-year planning horizon.

[b] Farmer benefits are based on a 15% return on assets and are calculated on an after-tax basis.

[c] At the time of default, the farm real estate is assumed to be valued 30% below the outstanding principal.

[d] The borrower pays the administrative cost and bond rate (10%) used to finance the loan.

[e] The low-interest loan is the same as a direct loan, but interest rates are 4 percentage points lower.

[f] The interest buy-down has terms similar to a direct loan, but the state reduces the interest by 4 percentage points for 8 years.

[g] The state makes a deposit in the lending institution at interest rates 4 percentage points below market rates. $1 of deposits is assumed to support $2 of loans.

[h] Thirty percent of the interest is deferred for 8 years; then 50% of the deferral is forgiven. With default, the entire 30% is forgiven.

[i] Thirty percent of the principal is deferred for 8 years; then 50% of the deferral is forgiven—equal to a 15% grant at the beginning of the period. With default, it is equivalent to a 30% grant at the beginning of the period.

[j] For every $10 guaranteed by the state, the state deposits $1 in a reserve fund and receives an interest rate on this fund 3 percentage points below the market interest rate.

[k] Interest income on qualified loans is assumed to be exempt from state income taxes, with a 5% marginal tax rate.

[l] Capital gains income for the original farmland owner is assumed to be exempt from state income taxes. The marginal tax rate is assumed to be 5% and appreciation in farmland value is assumed to be 50%.

[m] The landlord's rental income is assumed to be exempt from state income taxes, with a 5% marginal tax rate.

[n] The state is assumed to buy the land by issuing bonds at the market interest rate. The land is rented at 5% of its initial value. The state is assumed to have a $2 maintenance and oversight expense.

[o] All costs to the state are assumed to be covered under the case of no default.

[p] With a savings subsidy, the state puts up 5% of the loan as a grant equivalent.

- no cost for direct loan
- 2¢ for loan guarantee
- 3¢ for tax incentives to lenders
- 3¢ for tax incentives to sell farmland
- 7¢ for secondary market
- 13¢ for linked deposits

However, with default the costs of these loans vary considerably, depending on the state's role. Assuming default after 5 years, each $1 of loan costs the state

- 27¢ for direct loan
- 28¢ for loan guarantee
- 27¢ for secondary market
- 2¢ for tax incentives to lenders
- 3¢ for tax incentives to sell farmland
- 7¢ for linked deposits

In the last three cases, the state's obligations are assumed to end with default after 5 years, and the lenders bear the loss associated with default.

Reducing interest rates to farmers increases the levels of both farmer benefits and state-government costs. Benefits per $1 of loan are

- 69¢ for low-interest loan
- 65¢ for interest buy-down
- 57¢ for interest deferral/forgiveness

Without default the costs are highest for the low-interest program. With default, the cost of the low-interest program mounts considerably. State costs do not increase with default in the other programs because the state's obligations are assumed to end with default, and lenders bear the costs associated with default.

Both a principal-deferral/forgiveness program and a savings-subsidy program involve a grant at the beginning of the period, with the benefits accruing through time as the farmer has lower interest expenditures. A principal-deferral/forgiveness program is assumed to have larger costs and benefits than a savings-subsidy program. The state government's costs are certain under a savings subsidy but could increase dramatically under a principal-deferral/forgiveness program with adverse economic conditions in farming. The programs that reduce the outstanding principal on loans are less effective than those that reduce interest rates. For the latter programs, the benefits are assumed to accrue to the farmers as the government outlays are made.

The two lease programs considered give similar returns to farmers. However, the cost to the state is lower when the state exempts qualified rental income from state taxes than when the state buys the land. The state bears no risk associated with the failure of a farmer leasing the land from a private landowner. However, the state could lose money from a land purchase if land values decline. Conversely, if land values increase the state might benefit more from owning the farmland and leasing it to farmers. In fact, this program is the only one considered that has the potential for the state to receive windfall benefits.

## EVALUATIONS OF 13 TYPES OF PROGRAMS

This section evaluates 13 programs that state governments could use for farm financing. The discussion draws on the budgeting analysis above but goes beyond that analysis to identify advantages and disadvantages of the various programs. This discussion is consistent with that by Popovich (1986) but is much broader.

### Direct-loan Programs

In a direct-loan program, a state government enters the financial market and provides loans to farmers at market interest rates. It makes loans to farmers who might not qualify for conventional loans. Highly leveraged farmers or beginning farmers might be target groups. The state government's costs can be high for such a program if the borrower defaults, and the state has to generate the funds for the program at the beginning of the period. The benefits to farmers who can get conventional loans is small, but the benefits to farmers who cannot qualify for conventional loans is quite large.

### Loan-guarantee Programs

In a loan-guarantee program, the state pledges its funds to pay lenders if borrowers default. The advantages and disadvantages of a loan-guarantee program are similar to those of a direct-loan program. In particular, the funds can be targeted to farmers who cannot otherwise qualify for conventional loans, and the state government rather than the lender bears the risks associated with borrower default. However, an advantage of the loan-guarantee program over the direct-loan program is that the state government does not directly administer the loans.

### Tax-incentives-to-lenders Programs

In a tax-incentives-to-lenders program, the state government offers tax incentives to financial institutions to make loans to targeted groups of farmers. The farmers who cannot receive conventional loans benefit from this program. The cost of this program is not high, and the state government does not bear the risk associated with borrower default. However, the benefits to the lenders are not large compared to the risks lenders must assume. The low benefits and high risks might limit a lender's participation in the program and, therefore, limit its effectiveness.

137

### Secondary-market Programs

In a secondary-market program, the state serves as a secondary market for securities of financial institutions used for farm financing. States can use such a program to generate funds for targeted groups of farmers. Farmers who cannot otherwise qualify for conventional loans benefit from such a program. Under a secondary-market program, the state rather than the lenders bears the risk associated with borrower default; however, the state does not administer the loan.

### Linked-deposits Programs

In a linked-deposits program, the state government purchases low-yielding certificates of deposits and requires financial institutions to use the funds to make loans to qualified farmers. The low yields on state funds are a real economic cost but may be hidden—not appearing in the state budget. The state costs are high for such a program, but the lenders rather than the state bear the risk of default.

### Tax-incentives-to-sell-farmland Programs

In a tax-incentives-to-sell-farmland program, the state government offers tax incentives to landowners who sell farmland to targeted groups of farmers. These groups might be small farmers who are trying to achieve economies of size or beginning farmers. The tax incentive is to exempt capital gains from such sales from state income taxation. The costs of such a program are small, but the benefits to the landowners might be too small to have much impact. This type of program is more limited in scope than the other loan programs discussed here.

### Low-interest-loan Programs

In a low-interest-loan program, the state government enters the finance market and provides low-interest loans to qualified farmers. Such a program offers some of the largest benefits to farmers of all the programs considered; however, the cost to the state government is also high. In addition, the state government bears the risk of default.

### Interest-buy-down Programs

In an interest-buy-down program, the state government funds part of the interest expense for qualified farmers over a limited number of years. State costs are lower for this type of program than for a low-interest- loan program because of the limited time frame. States can more easily target such a program because the state rather than financial institutions determines the participants in the program. Also, state risks associated with default are low. Such a program benefits farmers who can qualify for conventional loans, but it does not make loans available to farmers who cannot.

### Interest-deferral/forgiveness Programs

In an interest-deferral/forgiveness program, the state government defers interest for qualified farmers during periods of adverse economic conditions. If economic conditions improve, farmers repay the state for its support. If economic conditions do not improve, the state forgives the interest expenses that it previously deferred. The advantages and disadvantages are similar to those of an interest-buydown program; however, this type of program has more uncertainty associated with it. If economic conditions do not improve, the state government is expected to forgive the deferred interest.

### Principal-deferral/forgiveness Programs

In a principal-deferral/forgiveness program, the state government purchases participation in a portion of refinancing loans. If economic conditions in farming improve, the farmer repays the state for its support. If adverse economic conditions in farming persist, a portion or all of the farmer's repayment is forgiven. Such a program can extend a great deal of relief to farmers and then recoup the state's costs if economic conditions improve. State funds are used along with loans from financial institutions, which is an incentive for financial institutions to make the loans. The cost of this type of program is potentially high, although a great deal of uncertainty remains about its eventual cost. The uncertainty arises because the repayment is linked to future economic conditions in farming.

### Savings-subsidy Programs

In a savings-subsidy program, the state government offers qualified farmers a subsidy to be used as part of a downpayment for a farming operation. New Zealand provides a similar program (Lowenberg-DeBoer and Boehlje, 1983). State governments can use such a program for beginning farmers. The costs and risks associated with this program are low, and the greatest benefits are for farmers who cannot otherwise qualify for a loan. However, the program may not offer enough help to get many farmers a conventional loan.

### Tax-incentives-to-lease-farmland Programs

In a tax-incentives-to-lease-farmland program, the state government encourages landowners to lease farmland to qualified farmers by exempting such rental income from state income taxation. Such a program helps beginning farmers, and it helps small farmers expand their operations to achieve economies of size. The costs and risks associated with this program are low; however, the benefits to the landowners are also low, which can limit the effectiveness of this type of program.

### Land-purchase-and-lease Programs

In a land-purchase-and-lease program, the state government purchases farmland and leases it to farmers. Saskatchewan uses such a program (Lowenberg-DeBoer and Boehlje, 1983). This type of program helps farmers expand their operations without having to make a large downpayment and without being subject to uncertain interest rates; however, the cost of such a program is high, possibly even prohibitive in terms of economic efficiency. The state also bears a great deal of risk. However, if economic conditions in farming improve, the potential losses of this type of program are reduced. Unlike any other alternative considered, the state could make a profit under this type of program. However, state constitutions often prohibit this type of activity.

## SUMMARY

State governments can use farm-finance programs to help existing farms survive and expand and to help beginning farmers get started.

Farmers and farm production benefit rural communities and the overall economies of states. These benefits accrue as farmers spend money in their communities to buy household and production items. Furthermore, businesspeople and workers throughout the agricultural marketing chain derive income from agricultural production and spend that money in various sectors of the economy. Such spending and respending has a multiple impact on income through the state's economy. While this type of externality is important to rural communities and entire state economies, private firms that lend funds to farmers do not take them into account.

Therefore, private firms lend fewer funds to farmers than are desirable from society's perspective. Fewer funds mean fewer farmers can survive and expand and less agricultural output is produced than is desirable. These externalities form the basis for public-sector involvement in farm financing through reducing interest rates or providing loanable funds.

Federal programs provide financial assistance by making FmHA loans to limited-resource farmers through deficiency payments and nonrecourse loans for eligible crop farmers who participate in government farm programs. However, such federal assistance is limited through congressional appropriations and authorizations; consequently, many farmers are not eligible for the assistance. Furthermore, federal assistance is inadequate for many farmers. Because the federal government has large deficits, it will probably not expand its financial assistance to farmers; therefore, state assistance is needed in farm financing to complement federal programs.

Benefits to farmers are similar for all six types of state programs discussed in this paper that loan funds at market interest rates. The programs provide funds to farmers who cannot obtain adequate funds from other sources. The differences in the costs of these programs depend on who bears the costs associated with default. The state bears default losses in direct-loan programs, loan-guarantee programs, and secondary-market programs. Financial institutions bear default losses in tax-incentives-to-lenders programs, tax-incentives-to-sell-farmland programs, and linked-deposit programs.

The three low-interest programs considered had larger benefits to farmers but higher costs to the state than the six market-rate programs. Low-interest loans made directly by the state have high costs and high risks associated with default. The default risks are lower for the state in interest-buy-down and interest-deferral/forgiveness programs.

Two state programs can be used to reduce the level of outstanding principal on farm debts. A principal-deferral/forgiveness program is beneficial to farmers, but the costs and risks are high. A savings-subsidy program benefits beginning farmers and has low costs and risks to the state.

The costs and risks associated with a program to exempt qualified rental income is low, but the incentives to landlords are also low, limiting the effectiveness of tax incentives to lease farmland. The costs and risks of a land-purchase-and-lease program are excessive when compared to other programs considered.

## IMPLICATIONS

If a state is interested in implementing a farm-financing program, it must answer two questions: What type of program should be implemented? At what level should the program be funded? States have to answer both questions at the same time because the type of program affects the costs, and the level of funding may limit the type of program that can be implemented.

The type of program that is best for the situation in any particular state might be some variation or combination of the proposals presented in this paper. For example, a state may try to limit its exposure to risk by providing only a portion of the needed funds. The main considerations in developing a program are the benefits to the farmer, the costs to the state, and the risks associated with default that must be borne by the state. The programs should be modified to reduce the state's costs and risks while maintaining the level of benefits to the farmers.

The level of funding for these programs must balance the need for the funds with the supply of state funds to be used. In 1985, only $500 million was committed to state farm-finance programs compared to over $200 billion in farm debt (Popovich, 1986). Apparently, additional funds are warranted. In theory, the state should allocate enough funds to this type of program that the marginal benefits from the last dollar equal the social rate of return. However, budget constraints in the short run may limit funding to these programs.

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# STATE-LEVEL AGRICULTURAL POLICY IN MINNESOTA: ADJUSTING TO CHANGE IN THE 1980s

C. Ford Runge

This paper considers both the limits and possibilities of state agricultural policy. The limits of state policy result not only from scarce resources but also from the fact that state agricultural sectors are enmeshed in national and international markets and political forces over which they have no control. Thus, programs that articulate state policy must recognize these macroeconomic constraints.

While this paper's purpose is to inform Winrock's effort to develop options for the State of Arkansas, its conclusions are general. It seeks to illustrate, using Minnesota as an example, policy response to the difficult agricultural environment of the eighties. Whether Minnesota's policies are adaptable to other states is a question best answered by those more familiar with each state's needs.

This paper focuses is on three programs with which I have been directly involved. The first is the Minnesota interest-rate buy-down program, which was developed during the winter of 1985 to relieve financially stressed farmers. This program illustrates five key conclusions:

- State financial resources are limited.
- Financial risk should be shifted away from state treasuries.
- Cooperative efforts by state departments and state universities have great potential.
- Problems result from efforts to make rural financial stress a partisan political issue.
- Dismantling temporary initiatives is difficult.

Given scarce resources, states must combine the efforts of various government departments, minimize conflicts over bureaucratic turf, and fully use the knowledge base of the state university system. Partisan politics and national debate over agricultural policy should not be allowed to dominate the attention of state agricultural officials.

The second program is the Minnesota conservation set-aside program: Reinvest in Minnesota (RIM). RIM illustrates the need for states to target their programs carefully in the face of budget constraints. It also suggests new ways that state universities and government departments can combine their efforts. Finally, it emphasizes the importance of working within federal programs—in this case the Conservation Reserve Program (CRP) and Acreage Reduction Program (ARP) of the U.S. Department of Agriculture (USDA).

The third program is state-level economic forecasting, with special emphasis on the agricultural sector. This paper distinguishes between agricultural forecasting and agricultural reporting, with attention to the analytical need to integrate these efforts. The conclusions are

- Separating state and national economic trends is difficult.
- The activities of state agriculture departments should be coordinated with those of other departments, such as revenue and finance.
- The analytical roles of university and private-sector economists are crucial.

## MINNESOTA INTEREST-RATE BUY-DOWN PROGRAM

In January 1985, 10,000 farmers massed in subzero temperatures on the steps of the state capital in St. Paul to demand relief from farm-debt burdens. Remembering the populist initiatives of the thirties, many called on the governor to impose a moratorium on farm-mortgage foreclosures. Set against this demand was widespread concern in the financial community that a moratorium would tie up orderly foreclosures and force reductions in the general supply of farm credit. In response to the rally, Governor Perpick appointed the Economic Crisis Commission.

The commission membership included four farmers: three activists favoring a moratorium and the conservative president of the Minnesota Farm Bureau, who opposed one. It also included four bankers: two from small-town independent banks, one from the Federal Farm Credit Bank of St. Paul, and one from a large metropolitan bank. Finally, it included four members of the state legislature: two representing the Democratic Farm Labor (DFL) party and two representing the Independent Republican (IR) party. To these twelve members I was added as chair, in part as faculty member representing the Department of Agricultural and Applied Economics at the University of Minnesota. The Economic Crisis Commission was later enlarged to include representatives of northern Minnesota's stressed Iron Range; however, the original farm subcommittee continued to meet separately and, after 4 weeks, presented its recommendations.

The two options that the governor asked the commission's subcommittee to consider were a moratorium on foreclosures and an initially vague proposal for farm interest-rate relief. Judging the moratorium issue to be exceedingly divisive, I proposed that the commission develop an interest buy-down plan first and then debate the moratorium. Meeting with staff in the state's department of agriculture, the commission relayed its discussions rapidly to farm groups, bankers, and the state legislature (then in session), resulting in at least one emotional visit from a legislator who was determined to promote a moratorium.

Despite the charged atmosphere, the subcommittee developed a detailed proposal for an interest buy-down on farm-operating loans, the first such state program in the nation. The essential feature was that private banks reduced interest charges on seasonal operating loans in return for a state commitment to share the costs of such a buy-down. The loans could be as large as $75,000. Interest reductions were fixed initially at one-third of the total interest-rate reduction for banks. In return, the state would pay the remaining two-thirds of the reduction. Terms of the buy-down were to be 1 year. The actual buy-down was calculated from the Federal Intermediate Credit Bank rate (then about 13%) and averaged about 6%. Lenders were to apply for the program, which the state's department of commerce would administer. An initial appropriation of $25 million was to be used until exhausted. Eligibility was restricted to farmers with debt-to-asset ratios in excess of 50%, based on farm balance sheets as of 1984.

While the legislature altered some recommendations slightly, the buy-down proposal was carried largely intact to the house and senate. After passage in early March 1986, the program was implemented quickly by the commerce department—but not in time for many farmers who had already arranged for or been turned down for spring operating credit. As a result, only about 10% of the appropriated $25 million in program funds was spent in the first year. The program was considered a limited success at best and was dubbed a failure by many advocates of the moratorium.

Meanwhile, the commission reviewed a moratorium plan and determined it to be incompatible with an interest buy-down because of its probable tightening effect on credit. This determination allowed a moratorium to be rejected more easily once the interest buy-down was passed. By an 8 to 4 majority, the commission voted against recommending a moratorium. The moratorium issue then moved into the legislature, where it tied up both houses for much of the session but was defeated, in part because of the commission's findings.

In the following year, the state faced revenue shortfalls. The legislature cut the appropriation for the buy-down to $5 million and slightly improved its attractiveness to lenders by reducing their share to 12.5% of the total buy-down and raising the amount of credit available to each farmer to $100,000. Ironically, now that the program was familiar to bankers and farmers, it proved popular in the face of the 80% funding cut. Available monies were applied for and committed with 7 days, forcing the governor to write a blank check indicating that all program requests up to a certain date would be honored. Ultimately, nearly $20 million was committed, creating a deficit of about $14 million. As support for a moratorium faded (with falling interest rates), the governor, the commissioner of agriculture, and some of its former critics in the legislature declared the buy-down program a success. And with even lower interest rates in 1987, the buy-down continued at a level of $17 million despite public opposition from many who argued that it was no longer necessary.

What conclusions can be drawn from this experience that should influence state agricultural policy? First, states can intervene successfully in farm financial markets, but only at the margin. The most important single feature of the interest buy-down proposal was that it restricted public-sector aid to less than several thousand dollars for each eligible farmer. For example, under the commission's original proposal, a 1-year operating loan of $75,000 at 13% interest would receive a 6% interest buy-down to 7% on 1 year of interest, having the state pay two percentage points ($1,500) while the bank paid twice that amount. To the farmer, the total interest costs would have been reduced by nearly half (from $9,750 to $5,250 or by $4,500). In effect, the state's commitment of $1,500 leveraged $75,000 in private credit. At this level, $20 million in state funds could leverage 50 times that much in private lending. The same principle applied even after the terms to the banks were eased slightly because the banks themselves continued to bear the risk of the loans. Hence, private lenders assumed the risks and not the state treasury and taxpayers. The second crucial conclusion is that financial risk should be shifted away from state treasuries because the agricultural sector is inherently disposed to greater variations in income than other sectors of the economy. If states provide income supplements or other forms of direct assistance, they take on a share of the risk of agriculture itself. In many cases, this risk is simply too great to bear directly. For example, Minnesota's program in the seventies to help young farmers get established by providing direct supplemental loans in which the state shared the risk resulted in almost all of the several hundred aided farmers going bankrupt in the eighties as land prices fell and their debt burdens accelerated.

Third, the Minnesota interest buy-down resulted from cooperation between state government and the University of Minnesota, which gave the program analytical support and advice. This cooperation was not a result of a carefully planned or long-standing effort; it occurred almost accidentally. Indeed, because of the highly politicized nature of the state's department of agriculture, cooperation was often hampered by suspicions that the university was insensitive to the needs of farmers and that it promoted technologies and policies that reduced their number. This point of view, combined with neopopulist sympathy in the department of agriculture for the foreclosure-moratorium proposal, made cooperation a fragile bargain. Much more could have been done to promote cooperation if the department of agriculture had been less directly involved in the politics of despair that swept the farm sector in that difficult winter and if the University of Minnesota had earlier extended offers to help in dealing with the farm-credit crisis.

The conclusion that the politicized department of agriculture caused problems is crucial, especially in periods of financial stress and adjustment. Very little is gained from attempting to gain partisan support from lost farmsteads and low prices. The wrenching declines in standards of living that characterized agriculture in the eighties require a measured, nonpartisan approach to state agricultural policy—especially because the capacity for state intervention is so limited. With such an approach, departments of agriculture will find it easier to develop links with other state departments and the state university.

A final conclusion to be drawn from the interest buy-down experience in Minnesota is that limited intervention, once it becomes popular, is difficult to disassemble even if it is obsolete. As interest rates fell during 1986 and 1987, the justification for the interest buy-down faded. However, the successes of the program encouraged its continuation in spite of questions about continuing need. Successful programs of intervention in financial markets, even when limited, are more difficult to tear down than to erect. Purely on economic grounds, many bankers would have restructured farm debt without the interest buy-down program, suggesting to some that it was unnecessary. Yet such economic reasoning abstracts from the fact that without the interest buy-down, a moratorium would have been much more likely and would have substantially increased the frictions between farmers and lenders, effectively reducing the flow of credit.

## REINVEST IN MINNESOTA PROGRAM

Reinvest in Minnesota (RIM) began in 1986 with passage of a bill that authorized a program of long-run conservation easements and a 10-year reserve-acreage set-aside. The program was the dream of a coalition led by wildlife protectionists, hunters, fishermen, and conservation groups. The RIM coalition built support for reinvestment in the land and water quality from which the state derived recreational and tourism benefits. This investment was to take the form of easements and a 10-year reserve of environmentally sensitive lands on individual farms. Over time, the coalition was joined by land preservationists such as the Nature Conservancy and farmers who believe in the importance of land stewardship. The coalition found strong support among urban and suburban legislators and rural advocates of a broadened economic base. Many advocates were suspicious of highly intensive agriculture practices, which they viewed as a prime cause of declining wildlife habitats in rural areas. The group was also wary of using RIM payments to farmers as a form of political pork barrel instead of meeting environmental objectives.

Meanwhile, the University of Minnesota developed a targeting scheme for set-aside programs that pinpointed lands that were low in productivity and highly vulnerable to erosion damage on Minnesota's soil and natural-resource maps. The university's department of soils measured soil-productivity differences and the department of agricultural and applied economics performed a policy analysis. From the results, a simple design was developed and presented to the RIM coalition as a possible basis for land retirements (see figure 1). The design appealed to the group on both scientific and political grounds. Not only could a plan identify many lands that were vulnerable to environmental damage through computerized land-information inventories, but the procedures could reduce the temptation to allocate RIM funds for purely political purposes.

In simple terms, the scheme divided lands into four categories based on two criteria: the productivity of soils as measured by a productivity index (PI) and their resistance to erosion as measured by a resistivity index (RI). Scaled between 0 and 1 for each soil type (based on approximately seven sampling points in each Minnesota township), soils could be categorized as productive/nonproductive and(or) resistant/nonresistant. For simplicity, these were each divided into two categories in initial examinations of Minnesota soils data by the Soil and Water Conservation Division of the Minnesota Department of Agriculture.

Soils can be classified as both productive and resistant to erosion (see figure 1). On these lands long-term, low-cost production could be encouraged, offering the comparative advantage of U.S. agriculture. On the opposite end, soils can be classified as neither productive nor resistant to erosion. These lands could be cheaply bid out of production and into 10-year set-asides. Lands in this category are ideal for the federal Conservation Reserve Program (CRP) because low bids would be enough to bring them out of production, lowering federal costs.

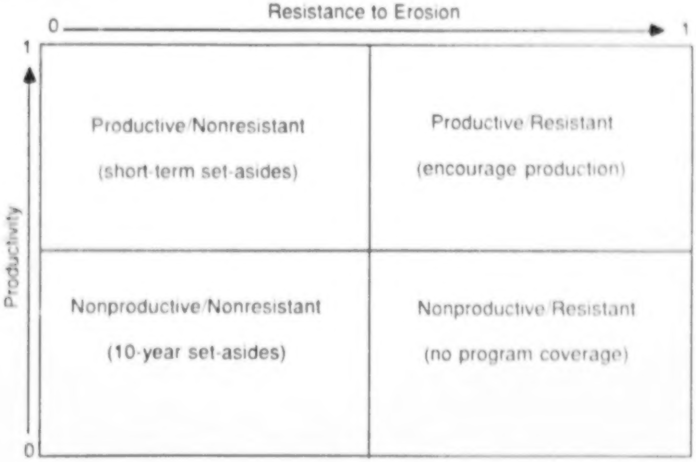
Resistance to Erosion
0
1
1
0
Productivity
Productive/Nonresistant
(short-term set-asides)
Productive/Resistant
(encourage production)
Nonproductive/Nonresistant
(10-year set-asides)
Nonproductive/Resistant
(no program coverage)

Figure 1. Mapping soils in terms of productivity/resistance to erosion.

In the middle are soils classified as productive and nonresistant. If left to market forces, these lands would be cultivated, causing excessive soil erosion. However, they are productive and would be expensive to bid out of production through programs like the CRP, which pays farmers based on the farmers' willingness to receive compensation. Therefore, such lands should be the first lands taken out under short-term, mandatory federal set-asides. By restricting set-asides to productive, nonresistant lands, nonproductive lands could no longer be set aside. This mandate would end the frustration of supply control objectives through slippage. Finally, soils classified as nonproductive and resistant to erosion should be ineligible for program benefits of any kind.

In subsequent refinements, the 10-year RIM reserve concentrated on the least-productive, least-resistant lands in the state. These lands (shown in figure 2 by the dotted box) were targeted for the program when it became law in 1986. The department of agriculture and the department of natural resources share implementation of the program. Each soil and water conservation district selects parcels that meet this criterion and for which retirement would enhance wildlife

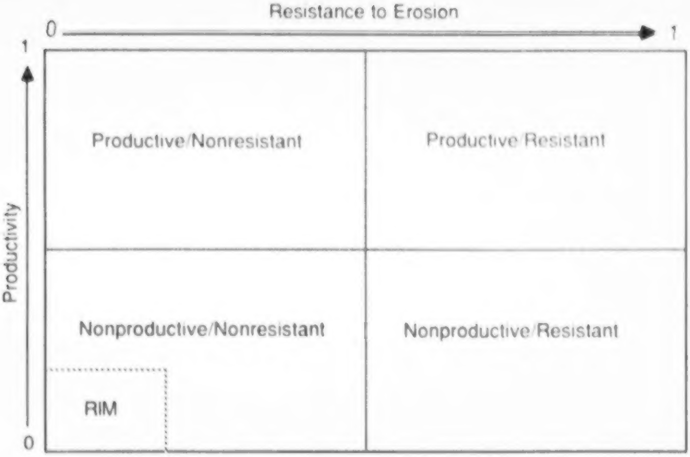

Figure 2. Mapping soils in terms of productivity/resistance to erosion, RIM targeting.

management and other public objectives. Landowners are then offered a take-it-or-leave-it price, paid up front, for cropping rights to these parcels for 10 years.

The rationale behind this targeting scheme is as follows. First, the state could not afford to retire lands indiscriminately, whether in comparison with other states or in relation to the federal CRP program. The targeting scheme focused RIM efforts where they would have the most impact on environmental quality without retiring productive acres and putting Minnesota farmers at a comparative disadvantage. The RIM program was also designed in conscious parallel to the CRP. It used the high visibility of the federal program and had many of the same program features. However, the RIM targeting scheme provides more flexibility yet clearly distinguishes productivity from environmental considerations. The popular notion that the CRP removes environmentally fragile, nonproductive lands that should not have been cropped in the first place is proven incorrect by the fact that most of the CRP land is in either the productive/resistant or nonproductive/nonresistant category—generally productive soils on which erosion can be controlled with proper management. In contrast, the RIM program excludes productive soils with relatively high resistance to erosion.

Flexibility in targeting is retained by making RIM budget allocations to counties based on the relative amount of targeted soils in each jurisdiction. The higher the legislative appropriation, the more money RIM allocates to each county—allowing the program to reflect changing budget realities. Also, local screening committees adjust the lines of eligible acres to reflect local knowledge of soil and terrain features, factoring in wildlife-habitat and watershed-management considerations. Therefore, instead of imposing inflexible criteria, the targeting scheme only reduces the pool of eligible acres.

A major conclusion to be drawn from the RIM program is that it is important to work within the constraints imposed by federal programs (although it has been suggested that the federal CRP could adopt the RIM targeting scheme since RIM has been designated as model legislation by the National Conference of State Legislatures). More than any other feature, RIM payments were set so as not to compete with the federal program. For the 10-year RIM reserve lands, the state paid 90% of the average, accepted CRP bid in the locality. The tie to the CRP payment served two purposes. First, the state had no idea how much the cropping rights to marginal land should or would cost; therefore, the CRP bids served a price-discovery function for RIM. Second, the 90% payment level for the 10-year RIM reserve let the federal government pick up its full share of land, without RIM paying for the land that would otherwise come out of production at federal expense. In subsequent rounds of land enrollment, the price-discovery function of CRP has been reduced, and RIM payments have shifted to a fixed percentage of cash rental values in each county.

In summary, the RIM program demonstrates that states can develop acceptable, budget-conscious acreage-retirement schemes that are based on well-defined environmental criteria. By using technical and economic information in cooperation with the University of Minnesota, the RIM program retained flexibility while targeting key acres for retirement. To date, over $10 million have been spent to retire 22,000 Minnesota acres (about one-tenth of 1% of the state's cropland). In contrast, CRP enrolled 1.3 million Minnesota acres by February 1987, with annual payments of more than $83 million. By bidding below CRP and targeting lands of particular concern to local soil and water conservation districts, the RIM program became popular with both farmers and state officials. In its recently completed session, the legislature authorized an additional $19 million in RIM bonds. Additional funds are now being sought from general revenues.

## STATE-LEVEL ECONOMIC FORECASTING AND THE AGRICULTURAL SECTOR

The dependence of state economies on the larger economic and political environment is especially evident in attempts to forecast state economic performance. Because agriculture is one of the leading sectors of Minnesota's economy, its performance has a profound impact on state and local revenues and expenditures and makes forecasts a critical component of state economic planning. Forecast errors are also the stuff of political blame laying, making them far more than an academic exercise.

Yet Minnesota's economy is powerfully affected by regional, national, and international forces. Its revenues and consequent budget constraints are largely functions of these outside forces. For example, the amount of money available for an interest buy-down or RIM program is highly sensitive to revenue forecasts and, therefore, depends on trends outside the control of state officials. While a number of key variables in Minnesota follow U.S. trends (such as employment, wages, and salaries), Minnesota's economic structure does not replicate the nation's. In particular, Minnesota depends more on the agricultural sector, mining, and forestry than does the nation. And all of these sectors are sensitive to interest rates and are export-oriented. Changes in interest rates, export demand, or both for any of these products are felt more strongly in Minnesota than in the nation as a whole. These interactions imply that Minnesota's economy is more volatile than the U.S. economy and, therefore, more difficult to forecast.

The Minnesota Department of Finance is responsible for making forecasts, which it bases on forecasts of the national economy prepared by Data Resources, Inc. These national forecasts are then interpreted for Minnesota with the assistance of the Minnesota Council of Economic Advisors, including the state economist. Since 1985 the council has been composed of leading private and university economists, and the state economist has been a half-time faculty member of the University of Minnesota's department of agricultural and applied economics. Working with the department of finance, this group develops a series of scenarios for use in state economic planning. These scenarios are less precise than point-estimated forecasts and recognize the volatility and dependence of the Minnesota economy on factors such as exchange rates, trade deficits, and interest rates.

Unfortunately, one of the least-understood sectors of Minnesota's economy from a forecasting perspective is agriculture. The reasons agriculture is difficult to forecast—its interest-rate sensitivity and export dependence—make the translations from the national DRI model to Minnesota especially troublesome. The essential features of the model used to estimate Minnesota farm cash income (see figure 3) are functions of aggregate U.S. farm cash receipts and production expenses. However, the actual structure underlying the agricultural

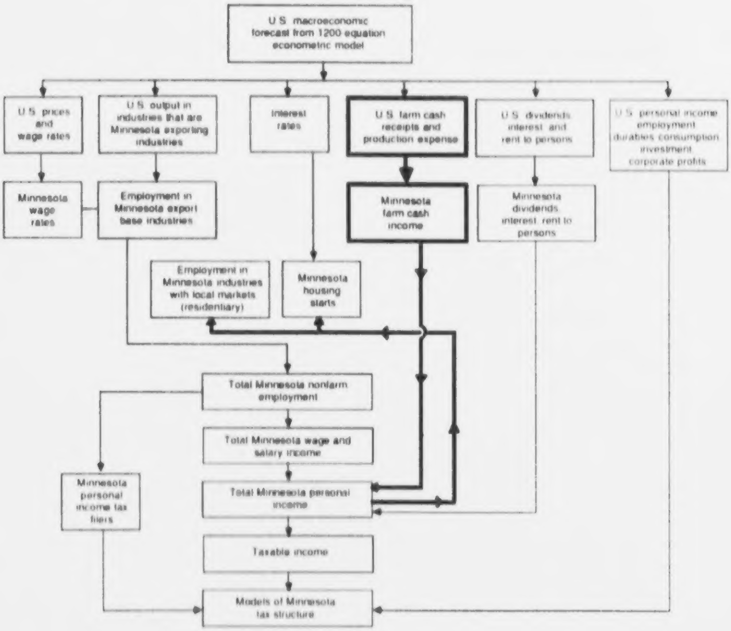
U S macroeconomic forecast from 1200 equation econometric model
U S prices and wage rates
U S output in industries that are Minnesota exporting industries
Interest rates
U S farm cash receipts and production expense
U S dividends interest and rent to persons
U S personal income employment durables consumption investment corporate profits
Minnesota wage rates
Employment in Minnesota export base industries
Minnesota farm cash income
Minnesota dividends interest rent to persons
Employment in Minnesota industries with local markets (residentiary)
Minnesota housing starts
Total Minnesota nonfarm employment
Total Minnesota wage and salary income
Minnesota personal income tax filers
Total Minnesota personal income
Taxable income
Models of Minnesota tax structure

Figure 3. Model of Minnesota economy employment and earnings (fitted to quarterly series, 1972-present).

economy is less specified than those of many of the sectors, and the development of scenarios depends largely on the expertise of the state council of economic advisors and state economist.

Despite the difficulties in forecasting, the statistical reporting services of the Minnesota Department of Agriculture are highly developed. Linked to the National Agricultural Statistics Service of USDA by longstanding agreement and 90% federally funded, the Minnesota Agricultural Statistics Service is the department's main data-gathering service. Data are collected on state and county levels and include weekly crop and weather reports; crop acreage planted and harvested; crops yields, production, price, and use; inventory numbers and prices of livestock, poultry, and dairy products; farm-income figures; farm-labor use and wages; pesticide use; and the results of special surveys such as a recent farm-credit analysis.

In a typical year, the service distributes half a million reports and publications. These reports help estimate the volume and value of agricultural products, helping producers and farm-related industries manage their businesses and market their products. Such reports also help government agencies formulate farm policy, help agribusinesses locate sites for their enterprises, and provide data to the nation's transportation systems to prepare ways to move farm products to market. However, the purpose of the reports is to help farmers make production and marketing decisions. Over 80% of the reports distributed are sent to farmers.

The Minnesota Agricultural Statistics Service is unique in that it is located within the state's department of agriculture and works closely with it while it cooperates with USDA's national agricultural statistics network and is almost fully funded by the federal government. The service often provides access to information and statistical expertise to other agencies by conducting surveys. The service also supplies crop and livestock statistics for departmental news releases.

The essential challenge confronting Minnesota is integrating agricultural forecasting with state and national agricultural statistics reporting. While the capacity to look backward at agricultural statistics is well developed, the capacity to look forward is limited by the structural causes of the farm-market shifts and the dependence of state economies on national and international forces that are difficult to forecast. Integrating forecasting and reporting adequately depends on bringing the department of agriculture more closely in line with the department of finance and revenue and the analytical work of the state economist. Even if the ability to model these trends improves, the role of experienced economists in the private and public sectors remains crucial to the development of policy for Minnesota. Hence, the Minnesota Council of Economic Advisors is an institution of continuing importance. In addition to analytical skills, the council can help remove the forecasting and economic-planning process from political blame laying that so often accompanies a failure to predict an unpredictable future.

## CONCLUSIONS

Minnesota has a reputation for being a progressive, responsible state government with visibility in agricultural policy. The reasons for its success lie in the joint efforts of the departments of agriculture, commerce, finance, and natural resources and the University of Minnesota. While these efforts have been joint, they have not necessarily been well coordinated. Coordination could be enhanced by developing a less-politicized, more analytically oriented state department of agriculture.

Even with highly professional, well-coordinated efforts at state policy, success at the state level is strongly influenced by resource constraints and larger economic and political forces. Each of the three programs discussed in this paper operates within these constraints in a different way. The interest buy-down seeks to affect farm credit only at the margin and only over limited periods. The RIM

154

program works within federal crop-support and conservation programs and carefully targets its efforts where they can be most cost effective in achieving environmental goals. Economic-forecasting and agricultural-reporting efforts rely heavily on outside modeling and on the National Agricultural Statistics Service of USDA.

In developing each of these marginal interventions, the state has drawn on the expertise of the University of Minnesota, allowing analysis to make scarce Minnesota dollars go further. Such experience suggests that the successful melding and professionalization of state departments with the state university provides the basis for Minnesota's success in formulating useful approaches to the difficult problems of agricultural adjustment.

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# APPENDIX

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